Issue 138 • 29th June 1991 • £1.50

COVER DISK
GUIDE, CHEATS AND TIPS
see pages 54 & 55

NEW COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR

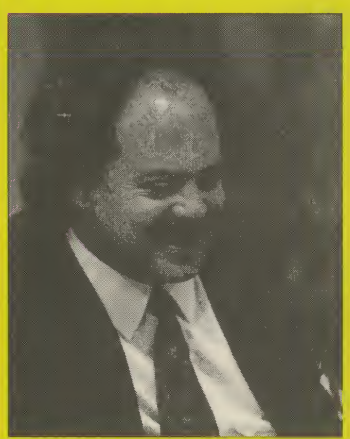
COVER DISK

A *complete* game for your Amiga/ Atari ST!

The action kicks off on page 54!

WORLD EXCLUSIVE!

ATARI: "WE WILL BLOW THE AMIGA AWAY!"

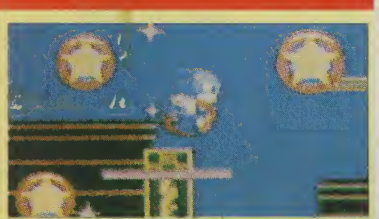


And that's not all: "CDTV is just a con job," says Sam Tramiel – "we'll do it for *half* that price!"

Read the full astonishing interview on pages 6&7!

Psst! Fancy a C64 for £99?
– catch the best deal ever on page 4

GAMES



SPICEY SPIKES
Sonic the Hedgehog hits your screens!

PC SPECIAL ISSUE
WHAT'S NEW FOR YOU?

Cheap 286 laptops

Cheap spreadsheets

Cheap 386SX towers

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Frontend

The stories that shock, the tales that titilate – Frontend is first with the news that takes you through to the otherside of the wild and wonderful computing world

COMPUTER VIRUS WITH THE HUMAN TOUCH

A citizen of the United States is claimed to be the first man ever to catch a virus from his computer.

The 'story' was broken in American scandal magazine *The Weekly World News*. It concerned a Philadelphia-based programmer called John Stevens who says: "I was careless about borrowing software programs from other people, people I didn't know too well".

Corroboration for the infectious tale comes from Stevens' doctor, Mark Fordland. The good doctor, whose medical speciality is surprisingly not mentioned in *The Weekly World News* piece, maintains that the symptoms shown by his patient are the same as those found in a computer virus. He says: "Stevens has become forgetful, like something is eating up his memory, his data. He has less and less energy. He can't hold on to his thoughts. Even an electroencephalogram (EEG) of his brain waves keeps changing. It's becoming more and more erratic. The virus could eat him up until his mind is a blank and he's like a vegetable".

Express attempted to contact the illustrious, if computer illiterate, Dr Fordland this week for confirmation of his history making diagnosis.

Stunningly he was not mentioned in the Philadelphia directory. Nor was any address of a medical practice with a Mark Fordland listed.

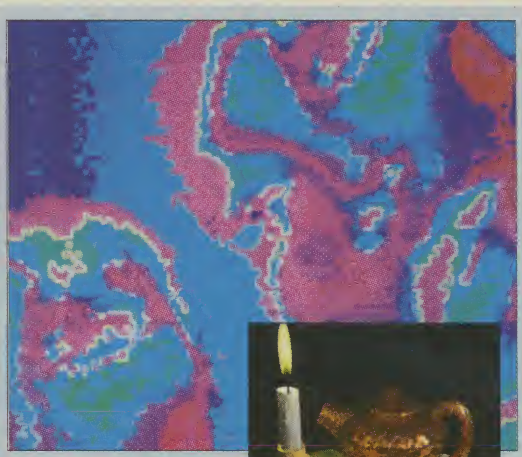
However, *The News* is obviously close to the medical miracle man. Fordland continued his in-depth analysis of his patient's position with the following searing simile: "Borrowing software programs from friends and strangers is like having sex with someone you don't know too well. When you sleep with someone, you sleep with everyone they've ever slept with. When you borrow someone else's program, you're connected to everyone who's ever used that program".

Obviously the story has no basis in fact.

There is no way in which a virus, which is merely a piece of computer-code, could transfer from its silicon-based host to a carbon-based victim.

Or is there? ■

• Arnie spent the whole of Total Recall *trying to retrieve his erased memory. Now John Stevens is having his brains cells wiped at a rate approaching 400K a minute*



• With the help of Silicon Pictures you and your Amiga could soon put high street fashion designers to shame.

Getting shirty

The vivid illustrations pictured above could be on your chest before too long if the Silicon Picture company has its way. They were produced using an Amiga with Real 3D, a video, a digitiser, Deluxe Paint III, Digipaint 3, Pixmate and, according to Silicon's Peter Feetham: "most important of all, a warped mind".

The main idea behind the move is to produce graphics related products and services for the Amiga. The emphasis at the moment is on the production of T-shirts and full-colour prints.

Silicon can produce prints in A3, A4 and A0 size. All you have to do is supply a picture on disk and give details of the size required. The disk-bound image should have a black 10 pixel border around it to give the best results. A3 and A4 examples of the work are available for £5. Apart from this, price is dependant on size, image and colours.

For more information, call 081-556 7607. ■

GET ANIMATED
(FOR REAL THIS TIME)

Last week's *Express* Exclusive on page 7 offering you the chance to enter the 1991 Amiga Animation Festival missed one vital element – the entry form. The Amiga Centre Scotland is looking for "The funniest, the most colourful and the weirdest entries".

Winning entries will be exhibited at the Amiga Centre between 21 and 28 August as part of the Edinburgh Festival. Simply create a sequence of moving frames and send it in on floppy disk or PAL-compatible video tape to: The Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, Scotland EH1 3RN. And now for the entry form...

Amiga Centre Scotland & COMPUTER EXPRESS

Name: .....

Address: .....

.....Tel No: .....

Format of entry:

☐ 3.5-inch floppy disk ☐ Pal video tape

Model of Amiga: .....

Details of peripherals added:

.....

Software used: .....

I agree to abide by the competition rules

Signed: ..... Date: .....

Porn again bulletin boards

• HRH The Princess of Wales – digitised images of her face are being combined with those of naked bodies to provide 'fantasy centre-spreads' for American BBSs. And there's nothing UK authorities can do about it

American bulletin boards that use satellite links to transmit wares throughout the world, also broadcast hard core pornography.

The porn, which can be downloaded using a home computer, modem and credit card number, includes digitised images centrefolds and what has been described as 'unnatural sexual practices'. There is even a series of 'centrefolds' featuring Princess Diana's head superimposed on a naked body.

The British legal authorities, however, are powerless to do anything about the situation until new laws are introduced.

Because the images originate outside of UK jurisdiction, Scotland Yard's Obscene Publications Squad can do absolutely nothing about them. ■

DIGITAL DISASTERS

We live with computers day in, day out. Occasionally they rankle, trashing files, falling over, locking up. These are normally minor niggles.

However, elsewhere in the world bigger computer make bigger mistakes. Starting this week, *Express* presents a catalogue of computer cock-ups. But there's more in for you than a good read. If you read any stories about magnificent malfunctions then send them in. We'll pay you a fiver if your story is printed.

FOOD FOR THOUGHT

An American supermarket was forced to pay $1,000 for selling food which had passed its sell-by date by one day. The reason? The computer dealing with stock control had not been set up to account for calendar changes in leap years. ■

Arcade in the home

The Mega-Powarcade is the latest 'arcade machine in the home' to come from the Active Sales and Marketing/Silverline axis.

Silverline, which creates industry quality arcade machine, built the cabinet for the £299 games engine which houses a Sega Megadrive.

Quite simply, you put your Megadrive in the cab, and make use of the sturdy joystick and button controls which are built-in to the front of the Mega-Powarcade.

For more information on the product call Active on 081-752 0260. ■

• Bring the arcade to your own home with Active's Megadrive cabinet

Virus attack • Digital delights • Hardware scrapped • Arc

HATE-filled giveaway scoop special

IT'S HERE!

Yes, you now have the first cover-mounted game ever to appear on a weekly computing magazine. Now all you have to do is turn to pages 54 & 55 and get stuck in!

HATE COVER DISK
Time to suit up, space-punks! Grab that disk from the cover of this week's Express and prepare to get airborne! Neil Jackson is your briefing sergeant, so listen up!
GET GOING!
NO STICK? YOU'RE NOT STUCK
GIVE IT SOME STICK
DISPLAY OF HATE
DOGGY DISK!

• Your mission awaits you on pages 54 & 55

SHOOT FROM THE LIP

'The time may soon be upon us when the generations are unable to communicate with each other, having no reference whatsoever in common. Does this matter? They seem quite happy with their computer games, although somebody told me they catch terrible diseases from them'.

Auberon Waugh, making an astute and timely comment on Frontend's lead story, perhaps?

"I actually have two jobs. During the day I work for IBM. During the evenings I am a famous rock star".
IBM's Ozzie Osborne making subtle references to an ex-member of UK rockers Black Sabbath, a man best known for biting the heads off bats.

'You will certainly, in the near future, be able to have simulated sex with a graphically enhanced partner of your choice - Julia Roberts, the young Bridgitte Bardot, James Dean.'
William Leith making deeply scientific predictions in one of the quality broadsheets.

"Not only did it (the Kodak Diconix M150 portable printer) enable me to print out all my questions and script for the David Lynch programme, but (it) enabled me to send some very attractive and impressive looking memos to the Wogan office prior to my standing in for Uncle Tel."
Modest Jonathan Ross in a press release from Kodak.

The law is an ASCII

"Our legal profession is still lacking in awareness as to both the potential and the pit-falls of information technology".

So said Professor Brian Napier, the first ever holder of the Digital Chair at Queen Mary and Westfield College, East London, during his inaugural speech earlier this month.

Professor Napier heads up the UK's first ever university department established to deal with the problems deriving from IT related law.

He also said: "Computer-related legal work is now worth millions of pounds and is expected to increase a further 400 per cent in some areas within five years".

When it came to the law of evidence, which is a complicated and history-bound state of affairs in the UK, he was forthright, saying it has to be radically altered so that "... computer output can be used as effective evidence in court. Existing clumsy and out-dated rules will have to be changed".

Frontend awaits the photographs of the first ever Digital Chair with baited breath. ■

Arcade adventures • Royal shocker

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Sam Tramiel speaks out...

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AVR's 16-bit ST Sampler

Suddenly studio quality can be yours with the first full-featured sampler. First review – page 52

Korg's Wavestation?

Is this the only MIDI system you're ever likely to need? *Express* tests the musical state-of-the-art – page 57

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What's New

A PC products special with 386 towers, 286 laptops and continuous feed lasers – see page 10

Games Week

Hot tips and news, plus *Sonic The Hedgehog* – page 50

Win a £1,200 Pentax scanner

Yes, the ultimate in flatbed scanners could be yours. Turn to page 58 now

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NIBBLES

The next NeXT

NeXT will launch a Reduced Instruction Computing Set (RISC) based machine in early 1992.

Capable of executing up to 60 million instructions a second, the next NeXT will use a Motorola 88110 chip running at 50MHz which will triple the existing machine's performance.

With 12Mb of RAM, a 100Mb hard disk and 16-inch colour monitor, the price of the machine has yet to be decided.

The next Mac

Apple's plans to launch a Mac notebook this autumn are well on schedule. Tipped to coincide with the release of *Lotus 1-2-3* for the Mac, Apple hopes to install the notebook with more well-known PC programs. Apple chairman John Sculley sees this as essential in ensuring the success of portable Macs.

Minitel here

France Telecom has announced that it is to bring its Minitel information service to the UK. The system has more than 2.5 million business users in France alone. The date it is to go on-line here is still unannounced

Archie Vangelis

Nine Archimedes 440 computers formed the heart of satanic Greek synth freak Vangelis's recent Rotterdam gig. Controlling lasers, digitisers and scanners, the Arcs were linked by phone data lines. Images were fired onto tower blocks, replete with white venetian blinds, in sync with the music.

Norton viruses

Norton Utilities version 6 is now available for PC users wishing to maintain safe disk management. During July and August the company is offering an anti-virus package free to upgraders. Both programs are compatible with the newly released DOS 5. V6 costs £139, with an upgrade for existing owners available for £49. More info on 0628 776343

Calamus bureau

ST users owning the popular *Calamus* DTP package will be pleased to learn another bureau has opened in London to cater for direct film and bromide output. Call Sumner Type on 071 703 4189.

Starry-eyed at Distant Suns

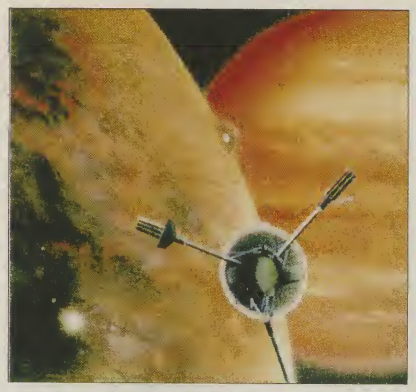
Sci-fi supremo Arthur C Clarke is reportedly stunned at an Amiga program that brings outer space into the living room.

Virtual Reality Labs' recently upgraded *Distant Suns* astronomy program prompted the best-selling author to call up the firm and say: "I'm totally awed by what you have done!".

Launched last week and demo'd on CDTV to impressed onlookers at Chicago CES, *Distant Suns* version 4 has Voyager space probe images, features 250,000 stars and includes ARexx external device control, by which Amiga owners could use the program to position motorised telescopes.

The package will run on PAL, is for Amigas with 1Mb of RAM and two floppy drives and costs $99. The software also includes facilities to create spectacular animation files.

Would-be stargazers should call VRL on 0101 805 545 8515 for more details. ■



• Yet more starry images can be brought to your Amiga, without recourse to buying a deep-space probe.

15 pins for free

For a 24-pin printer at the price of a 9-pin, call Morgan Computer.

The company has overstocks of Amstrad's LQ5000 di on sale for just £129.

It can print at 288 characters per second (cps) in draft mode, 88 cps in quality mode, offers 132-character column width, IBM or Epson emulations, 7K printer buffer memory and adjustable tractor feed. Phone 071-255 2115/021-452 1141.

Buyers turn to PC clones as brand-name market slides

PC CLONE WAR

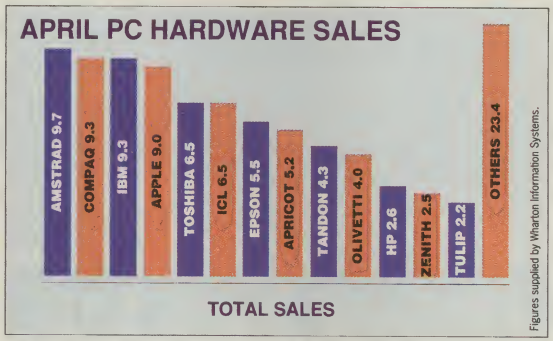
Clones are 'swooping in' to the PC market and causing buyers to turn away from brand-name machines, says a leading market analyst.

And new figures from two micro-marketplace surveys confirm that the dominance of brand-name PCs is slipping.

Wharton Information Systems' Research, a monthly report that takes into account sales direct from suppliers and through retailers, reveals that no one company has achieved more than a 10 per cent slice of the market. Amstrad leads with 9.7 per cent, while in joint second place are IBM and Compaq with 9.3 per cent.

Wharton's Keith Wharton says the figures show a significant trend in the PC market: "The PC world is really being shaken up at the moment. No company has more than 10 per cent and the 'others' column [see table] accounts for nearly 25 per cent.

"Buyers are turning away from premium machines. The Compaq's of the world don't have the technological advantage they once had. The clones are swooping in within a couple of months and are offering the same technology."



• Market analysis shows bad times for IBM and Compaq as clone machines offering the latest technology fragment the PC market.

Apple, meanwhile, is making impressive moves and is up from sixth place a few months back to fourth with 9 per cent.

A Romtec survey of units sold through retailers only also has disappointing news for IBM. Compaq has taken over the top spot with nearly 20 per cent of the market, as IBM drops to second with 17.2 per cent. Apple is third with 14.7 per cent.

The situation echoes that of the US, in which Apple is also the only real winner. The company has been topping the sales chart there for the last few months.

A spokesperson for Apple told *Express*: "We're very pleased with these figures. It shows that our strategy is working. Everything was set in motion last October with the new launches. That was intended to be a turning point, and it has indeed proven to be one."

IBM was more dismissive of the figures. A spokesman said: "We never comment on third-party reports."

However, the company is currently seriously rethinking its marketing strategy in Europe and has set up a new Personal Systems' Business Unit in Paris to co-ordinate European sales. ■

IBM's pink Apple due

More facts are emerging on the recent link-up between Apple and IBM. Motorola is going to manufacture 6000 RISC chips for both companies.

These will form the basis of a new Apple operating system, code named 'Pink', that will run on a range of as-yet unannounced machines pencilled in for late 1992 or early '93.

Further details are sketchy as all three parties are remaining tight-lipped over future plans.

Fast drive

Seagate is launching a 1.2-gigabyte 3.5-inch disk drive for workstations and high-end PCs.

The ST11200N, should be available by the end of the year and will be priced at $1,895 (around £1,200). The drive has a fast 10.5 millisecond access time, offering data transfer rates at up to 50 per cent faster than average 3.5-inch drives.

This is made possible through use of a technique patented by Seagate called Zone Bit Recording (ZBR) which boosts storage capacity by recording more data on to the drive's outer tracks, thus making the drive more reliable as it uses fewer recording heads to read and write to disk.

"The ST11200N combines the increased storage capacity and small form factor necessary for data-intensive applications," said Seagate's marketing manager, Gary Gentry. ■

• Seagate's 1.2-gigabyte 3.5-inch drive offers speed and capacity usually found with 5.25-inch drives.

New C64 package sparks relegation to console fears

PLAYFUL BUNDLE CAUSES RUMBLE

Commodore's new sub-£100 C64 bundle has been criticised for reducing the machine to little more than a glorified console.

The new bundle, called Playful Intelligence, includes the C64, a joystick and a cartridge containing four games. It is available now and costs £99.99, £20 less than the previous bundle.

The most notable difference with the new package is the absence of the C2N data recorder. Commodore announced this March that it was to discontinue supplying the C2N as standard (see *Express* 124), and the new bundle appears to confirm Commodore's commitment to the less easily pirated cartridge format.

A spokesman for Commodore told *Express*: "When we decided to drop the data recorder we had to consider carefully how we would position the C64. The new bundle is designed to show people they can now get more than just a console for under £100."

• Playful Intelligence is primarily a games bundle, yet Commodore is emphasing its educational potential – it includes the only sub-£100 computer on the market and its C64 keyboard can be used for more serious computing.

However, many industry insiders are concerned that the machine is now little more than a glorified console itself. The four game cartridge is the same as the one supplied with Commodore's existing console, the C64GS. The absence of a data recorder means that using the C64 for anything other than games is difficult since there is no way to save any information you have entered. One Commodore watcher complained to *Express* that there seems no point in having a keyboard on the C64 any longer.

Marketing manager, Kelly Sumner, denies that the company now sees the C64 as purely a games machine: "The title of the new bundle says it all. The kids want it to play games on, but parents, who actually buy the thing, like to think that their children will actually get educational some benefit from it. You can still go out and buy a data recorder easily enough."

The repositioning of the C64 also throws doubts as to the future of the C64GS, Commodore's existing console which also currently costs £99.99. It has a record of poor sales and Sumner admits that: "At the moment there is no reason to buy it, but there is a limited market for it at a reasonable price." ■

PC notebook makes waves

Mitsubishi Electric has unveiled a notebook PC which can use radio waves to transmit data to other machines rather than phone lines.

The enhanced Maxy Note uses the Japanese MCA Service Information System, a radio-based network and includes a MCA transceiver, a radio modem, an acoustic coupler and an A4-sized printer.

The complete system measures just 47 by 34 centimetres with a height of 13cm and is intended for business use. Although expected to sell here for around £4,000, running costs for in-the-field users will be marginal since transmission costs are a lot less than conventional mobile phones.

More information is available from Mitsubishi Electric on 0101 81-3-3218-2332. ■

Dr ROM at your service

Every hypochondriac's prayers have been answered with a new CD-ROM launched in the States.

***The Family Doctor* contains a complete medical reference for the lay person with everything from basic anatomy to definitions of those archaic Latin terms used by doctors to keep patients from understanding them.**

The Mac and PC-compatible CD also features a 1,000-page 'Consumer Guide to Prescription Drugs' and a listing of national support groups for people suffering from certain diseases. Selling for $179, *The Family Doctor* is available from CMC ReSearch on 0101 503-639-3395. ■

Speedy ST

ST users will be able to make their machines up to 12 times faster and eight times more colourful thanks to two new upgrade boards.

If you have the need for speed then the Turbo 30/40 and Turbo/30/50 68030 accelerators from SofTek enable an ST to run at up to 50MHz. They come bundled with *TurboST* and are specially tuned for Hi-Res video boards and options include 4 or 8Mb of super-fast 32-bit RAM for extra speed.

Prices start at £899, telephone 081-676 0025 for details.

If it's more colour you are after then the ST4096C board increases the ST's palette from 512 to 4096 colours, by allowing for 16 levels of each colour as opposed to eight. This is the equivalent of an STE display.

Smaller than a credit card, it simply plugs into the ST's shifter socket, so there's no need for soldering. It is compatible with any pre-STE machine and does not interfere with RAM upgrades that use the shifter socket.

The board is available now from TC Developments at £79.95. Tel 0937 581145. ■

Portable printer for your briefcase

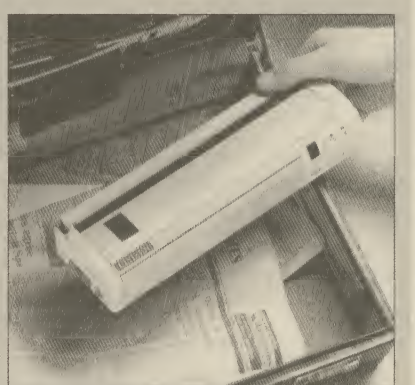
Citizen has launched what it claims is the world's smallest A4 portable printer.

The PN48 weighs just 1.7kg and is about the size of a cribbage board, so that it can easily fit into a briefcase alongside a notebook computer. The company reckons that it almost half the size of its nearest competitor.

Priced at £325, the printer is powered by a rechargeable NiCAD battery that has a life of around 30 A4 pages. It can also be plugged into the mains. Supplied with either CTZ Times Roman or CTZ Courier fonts it can reach a print speed of 53 characters per second.

It has built in Epson LQ500/850, IBM Proprinter X24 and a specially-designed Citizen emulation to provide compatibility with all leading machines.

"The size and quality of the PN48 makes it a natural notebook partner, offering the flexibility and features you find on a high quality desktop printer," says marketing manager, Anthony Odhams. ■



• You can fit the PN48 printer and a notebook PC in your briefcase and still have room for your packed lunch.

Microsoft all set to launch Windows 3.5

Microsoft watchers are predicting the company will abandon plans for Windows 3.1 and pitch straight in with version 3.5.

This will integrate the features already implemented in Windows M – the multimedia variant which includes device drivers for CD, video and audio control.

The new version, expected to be with us by the autumn, is felt by many to be another indication that Microsoft's relationship with IBM is under severe strain.

IBM plans to launch its own operating system in direct competition to Windows, leaving Bill Gates' boys with no choice but to set their own standard for future multimedia PCs.

Microsoft is putting on a brave face on the matter, claiming sales are up 157 per cent on last year and that more than 700 software developers are working on Windows applications. ■

Modem users get a look in

'The world's first electronic library, The Library of International Relations is now on-line and offers modem users access to 100,000 volumes and 750,000 documents, covering economics, politics, business, and trade.

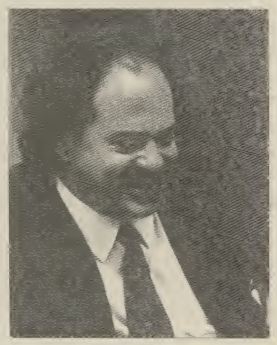
The documents and volumes have been scanned on to WORM (Write-Once, Read-Many) optical disks, and can then be retrieved and transmitted either electronically or via fax.

LIR chose to store the documents in a graphics format to allow the service to retain the visual character of the documents. LIR can produce a document in graphics files formats such as GIF, TIFF, etc. LIR, is on 0101 312-368-1500. ■

Boss Tramiel pulls no punches as Atari gears up to 'wow' the world

CHICAGO BULLISH

"I think it's a con job and I don't think it's going to work" – so says Atari president Sam Tramiel of Commodore's CDTV. Dave Roberts brings home an exclusive *Express* interview in which Atari's chief blasts the opposition and gives a frank insight into the company's console, computing and interactive multimedia plans



• Atari president Sam Tramiel has a whole new range of 'wow' machines up his sleeve, including a 'stunning' 64-bit games console.

At the recent CES in Chicago, the hottest gossip was about Atari which, so the rumour goes, had scrapped the Panther and had an even more impressive beast waiting to be launched.

Unfortunately, the firm was not at the show to answer questions, so Dave Roberts headed to a nearby hotel where he met the firm's president, Sam Tramiel. And, you know what the rumours said? Well some of it was true...

LYNX II – THE TALE CONTINUES

Express: A good idea might be to run through your current range and get a state-of-play report on all the machines, starting with the Lynx which I believe is just about to be boosted by the arrival of the Lynx II.

Sam Tramiel: The Lynx II has been ready for a while and it should be introduced in the US, probably August. It's already in production and we have inventory; it's just a question of moving out the present Lynx to avoid an overlap situation.

Express: Are you happy with the way the Lynx is selling?

ST: Sure I am. At the end of the year we'll have sold around 800,000 pieces, which is about on projection.

Express: And will the Lynx II give sales a big kick? Are consumers aware that the II is on the way?

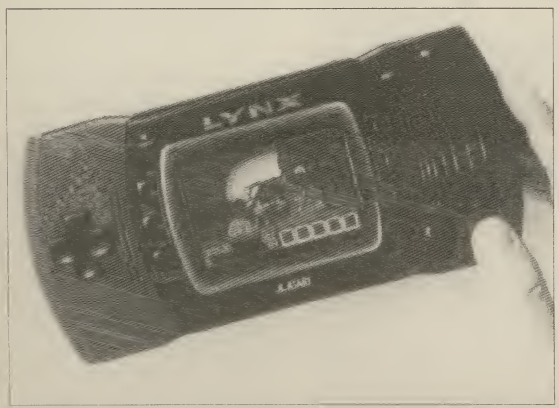
ST: I have talked to a lot of our shops, and they are getting calls all the time from people asking when the Lynx II will be in. It will definitely pick sales up, but it's important to remember that it's just the same machine, with cosmetic changes.

Express: Those changes are to make the machine more compact?

"The new feline is an incredible machine, vastly superior to the Panther"

ST: Exactly. When we did Lynx I, we did not design the mechanical part, that was bought in and it wasn't a very efficient way to make the thing. Lynx II gives us a much more efficient manufacturing process and that's why we've introduced it.

Express: How do you think it stands up against the Gamegear?



• Atari hopes to boost year-end sales of 800,000 Lynx game machines with a cosmetic revamp. The new machine will be called, quite simply, Lynx II.

ST: I know it's tough to show this in a magazine, but if you compare Lynx to Gamegear and look at the quality of the games and look at the background, with the Gamegear it blurs. It's not good in Gamegear, they've screwed up the chips on it but on the Lynx everything is just so crisp.

Express: Gamegear does have the advantage of the TV tuner, however, which Lynx doesn't have as yet.

ST: We're looking at it. It's interesting, because in the US Sega has been advertising that but you can't buy it. It hasn't passed the FTC tests yet.

Express: What about the software situation on the Lynx?

ST: That, of course, is the important issue in all of this and we are now shipping 24 titles on Lynx and before Christmas we have another 20-30 coming out, and they're all great.

Express: You're happy with that number are you?

ST: Yeh, because they are all quality games, they look fantastic. I was just playing *World Class Soccer* which is due out soon and should do really well in the whole world except the US.

Express: Even though you are staging the next World Cup?

ST: That's right, but me and my father are both big enthusiasts and a lot of younger kids are picking up on it over here, so perhaps we'll sell a few.

CONSOLES CRACKING ON AND ON

Express: OK, what about the console range, starting with the veterans, the 2600 and the 7800.

ST: They're going very well around the world, except for the United States.

Express: So with that large market – your home market – no longer viable for the two machines, do you not feel tempted to just drop them?

ST: No. In the rest of the world they're still doing well, so we carry on making the hardware and we're still developing software for it. Why drop it?

Express: How long can they last though? They are very old now, aren't they?

ST: Well they were launched way back in the seventies, but I would say that they have at least two more years in them. At least, that's my guess.

Express: There has also been talk of some new consoles in the past year. First there was talk of an ST console which is apparently not going to appear and now, just as people are beginning to look forward to the Panther, it seems that will not appear. What exactly is the situation?

ST: OK, this is probably a good chance to clarify that whole situation. We were working on two systems for our next console machine. One was Panther, the other, I will not tell you the code name for, other than to say it is a wild feline animal [he means the Jaguar]. And Panther was scheduled to be released first.

"There will certainly not be an ST console"

The crucial thing is that the new feline is an incredible machine, vastly superior to Panther. Panther was a very good machine; it was better than the Genesis [Megadrive], like Super Famicom, a good 16-bit machine. It wasn't a knock-your-socks-off machine. The new feline is most definitely a knock-your-socks-off machine. It is unbelievable.

Express: Tell me, in what way exactly is it superior?

ST: The graphics and sound are quite simply miles ahead. It is just incredible. So we did a very careful analysis of the situation; things were going very well with the new machine and we just thought "why should we cause confusion amongst the Atari developers?" So we decided to put Panther on hold and put all the emphasis on the new machine.

Express: So the plan was to release the Panther at the end of this year; beginning of 1992...

ST: ...and then bring out the new machine a year-and-a-half later. But the other one caught up so well that we just had to put full emphasis on it and go full blast. And now, if everything goes according to schedule, we should introduce the new machine some time in the second half of '92.

Express: Does that mean that the Panther will now definitely not happen?

ST: Probably, and it's a shame, but that's what happens. You have to have new developments and you have to make tough decisions sometimes. The important thing is that we didn't want to be a "me too"; we didn't want a machine that was just OK. The new feline is stunning, I really can't explain it, you have to see it to understand what it can do.

Express: And this is, again, a 16-bit machine?

ST: No, it's 64-bit.

Express: 64-bit?!

ST: When you actually see what it can do on a television screen you'll be even more amazed.

Express: So can a 64-bit console possibly be a mass-market product?

ST: That's our hope.

Express: Surely it would be very expensive?

ST: That's the trick, but we're quite sure we can pull it off.

Express: Presumably you'd have to get it in below $300.

ST: Oh way below that.

Express: $200?

ST: We'll see.

Express: That would put it in exactly the same price bracket as the Super NES.

ST: Right, and we'll be interested to see how that machine sells.

"We are keen to compete with our little competitor – the 'C' company"

I know that in Japan, Super Famicom is doing OK, but nowhere close to the expectations. It's basically too expensive and I can't see America paying $200 for a video game at this time. I just don't see it.

So we decided not to go into that fight with a 16-bit machine that is just comparable with it's rivals. It would have been an OK machine, but we want to make 'wow' machines.

Express: I believe that there were a lot of development machines out there.

ST: There were, and now they're being recalled.

Express: When do you think you'll get the new machines to the developers?

ST: In the next two months.

Express: Are there any other plans coming up in the console market?

ST: No, that's it really. The future will be the 2600 and 7800 continuing in the low end for the next two to three years and the new feline and the Lynx being part of the line up for the next four or five years at least.

ST REMAINS UNCONSOLED

Express: Are you not tempted to try and fill that quite substantial gap between the VCS and the Jaguar? You must have actually made one of those ST consoles that were talked about for so long.

ST: There will certainly not be an ST console, but there will be continuing expansions on the ST line. Today we have the STE and the Mega STE. We have at least four new machines coming out in the ST line and they are just absolutely phenomenal.

Express: Would they cover both the entertainment and business markets?

ST: Yes and yes.

Express: When will see them?

ST: All four will be out in 1992.

Express: Can you tell us anything about them?

ST: No, only that they are phenomenal machines – 'wow' machines.

Express: Will any of them take the place of existing machines?

ST: No, they'll be added on.

Express: And do you feel much happier with the range now that the STFM has finally gone for good?

ST: Absolutely. We had to do that to convince developers to concentrate on the STE.

Express: But don't you think there was something of a problem when the STE was introduced?

ST: There was a problem. People were rather confused about what to support and we are keen to compete with our little competitor – the 'C' company – so we sorted it out.

Express: Do you see this as a fresh start then for the ST?

ST: I do, yes.

Express: Do you think that when the FM was the main machine, the ST was losing ground?

ST: The Amiga was seen more as the games machine and ST was doing more of the serious stuff, and we want to get more of the entertainment market.

We certainly don't want to give that market up; it's very important to us. We still want to have the multi-purpose reputation and we will have because there is some phenomenal software for the ST and the TT.

I think the best desktop publishing software in the world is on the TT. People are shocked by what the TT can do.

So the TT series will carry on very strongly and with the 030s, you'll be seeing improvements in TOS; multi-tasking TOS coming out on those machines.

Express: And you're obviously greatly looking forward to taking on the Commodore Amiga computer in the games market.

ST: Head-to-head. We'll blow them away. Honestly, you'll see.

Express: At the moment some people in the UK might find that statement a touch contentious.

ST: I always like to be contentious.

Express: Presumably then, it's these new STs waiting in the wings that will really win the war for you, because your current line-up seems to be running second.

ST: The STE is a straight-on comparison with the Amiga. There are pros and cons on both machines. We're faster, we have hi-res monochrome; they have more colours but it runs slower.

Generally, however, they are equal machines and we have the price advantage.

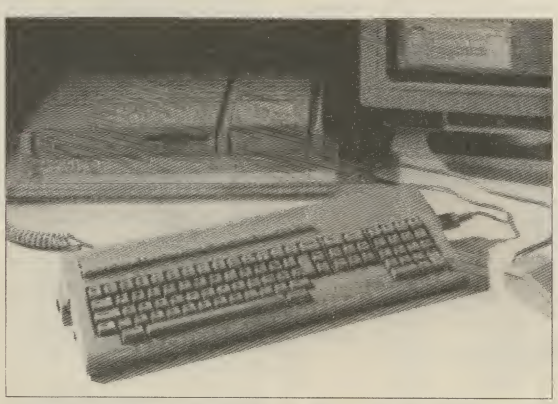
So I think the STE has got a great future for this year and just wait until you see the machines for next year.

Express: Can we look forward to an even more advanced ST – a sort of STEE specifically for the leisure market?

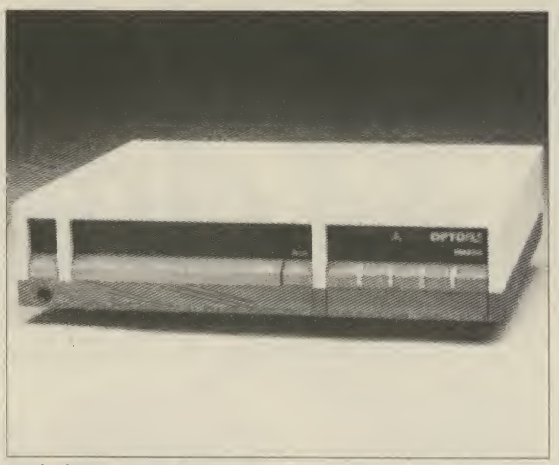
ST: I can't comment on that at all. I can just say that they will be very, very exciting.

Express: And they will, of course, run alongside the existing machine?

ST: The issue of compatibility for us is, of course, of major, major importance, so we are producing machines that are as consistent as possible in compatibility.



• Tramiel says people are shocked by TT performance, and the 030-equipped model is set for upgraded TOS giving true multi-tasking.



• A forthcoming CD-ROM drive, due in August, will provide the basis for Atari's answer to Commodore's CDTV. The model above has been around since 1988 but no software for it has ever been commercially available

CD-ROM SHIPPING FORECAST

Express: One machine that has been mentioned as a possible addition to the ST family is the CDST, what is the situation there?

ST: We have a new CD-ROM drive coming out for the ST series, shipping, let's say, to be conservative, in August. It's a plug-in to STs and TTs and it's a CD-ROM and it does everything, at least, that CDTV does. It just comes in a separate packages.

"If the CDTV concept of one-box packaging does well, we'll re-package and do it that way"

If the CDTV concept of one-box packaging does well, we'll repackage and do it that way. Our CD-ROM will support ISO, High Sierra formats and it shouldn't be a problem getting titles transferred over.

Express: What sort of price are you looking at for that?

ST: My target is $499 maximum.

Express: And will we definitely see the machine in Europe this side of Christmas?

ST: Yeh, for sure.

Express: What are your views on Commodore's entrance into the market with CDTV?

ST: I've been asking people just how the CDTV has been selling and I talked to one person this morning who has 200 stores in the US. She said it's selling great, so I asked her exactly how many she'd sold and she said: "Two".

I said: "Well how is that great?" and she said:, "Well I only expected to sell one".

But I think generally the whole CD area is, I think, to the consumer, becoming extremely confusing. There's CD-ROM, CDI, CDXA – I mean wow! What's going on?

If I was making a CDTV-type product as an all-in-one unit to be sold by itself and knowing that Sony, Philips and others are going with CD-I as a standard, then I wouldn't feel too comfortable, but CD as an adjunct to my computers? I feel fine.

Express: So you'll be hanging back from an all-in-one CDST for a time?

ST: Right. We'll wait and see what happens.

Express: If you do launch one, will you go for a machine that looks obviously like an ST but with a CD drive, or would you prefer instead to go for Commodore's black box, 'Trojan horse' tactic?

ST: We're watching the market to help us make that decision.

Express: What do you think of this talk, particularly from Commodore, of these 'Trojan horse' tactics – the idea that you can almost sneak a computer into the home?

ST: I think it's a con job and I don't think it's going to work. Let's face it, you have to have a keyboard to make a computer work, you just have to.

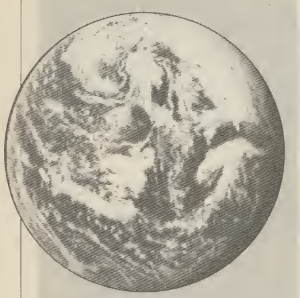
Presumably these things are not just for games, and for any kind of serious work you have to have a keyboard.

Express: You're not really convinced, are you.

ST: I'm not convinced at all. But let's see, I might be wrong, and if I am then we can have a product out very fast. ■

TOMORROW'S CUTTING EDGE

Facts from the brave new future – it's only round the bend



• No matter where in the world you are, the new GPS systems being developed in Japan will help you locate your position in seconds.

Where on earth?

Two leading Japanese companies are developing devices that will pinpoint your position anywhere on earth in seconds, and are totally unaffected by any fluctuations in the Earth's magnetic field.

The GPS systems calculate your precise position, as well as your altitude and speed, from data received from a series of 'Navstar' satellites, launched by the US defence department.

Currently there are 15 Navstar satellites in orbit and nine more are expected to be launched by the end of 1993. This should mean that the systems will be able to function anywhere on the planet.

The Portable GPS Receiver Pixcess from Sony weighs only 1.3 pounds and is slightly smaller than the size of a paperback book. It is aimed at people who pursue such outdoor events as sailing, fishing, diving and gliding, but Sony suggests that it can also be installed in cars to aid navigation. It is expected to sell for around 158,000 yen (around £700).

Pioneer's GPS has a four inch LCD screen to display maps stored on CD-ROM. No price has yet been announced, but market experts in Japan are predicting it could catch on in a similar way to the walkman. ■

Let's talk fuzzy

The Japanese are this week hoping to convince the West of the potential of fuzzy logic for industry.

The Fuzzy Systems Conference in Texas, US, will cover the history of fuzzy activity in Japan and a look at how applications' problems can be overcome using fuzzy logic. A two-hour fuzzy tutorial is also planned.

The conference is being sponsored by two Japanese companies: the Fuzzy Logic Systems Institute (FLSI) and the Laboratory for International Fuzzy Engineering (LIFE), in conjunction with the US-based Microelectronics and Computer Technology Corporation (MCC). MCC technical adviser, Steven O'Hara, says the aim of the conference is to educate American industry about the advantages of fuzzy logic which, he claims, has already taken off in a 'big way' in Japan.

Whereas the logic of conventional computers is based on the binary system in which every decision is answered either 'yes' or 'no', fuzzy logic, which some experts reckon is the first major step towards true artificial intelligence, introduces an element of 'what if?'. It can be used to make judgements based on a number of variables, weighing the relevance of each in a given situation.

In Japan it is being used in consumer electronics such as washing machines and vacuum cleaners so that they can automatically decide what settings they need to be on. At the moment fuzzy logic is usually programmed in at a software level, but companies in Japan are developing fuzzy chips capable of handling fuzzy calculations at a much increased speed (see *Express* 136, page 8). ■

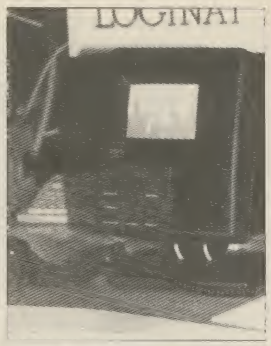
• Mountains of paper are wasted every day in offices all over the world, but eraseable ink could save sizeable chunks of the Earth's trees.

Eraseable ink saves paper

Why recycle paper when you can use the same sheet over and over again? This is exactly what you will soon be able to do thanks to a new eraseable ink for printers and copiers developed by Japanese chemical firm Showa Denko.

The ink vanishes when subjected to the light of a halogen lamp, leaving the paper, the company claims, as good as new.

Special eraseable ink cartridges should be available by early next year costing around 10,000 yen (about £50). The company is also developing an eraser device which should work in a similar way to an office printer, except that it will take the ink off paper instead of putting it on. ■



• Look while you listen – fibre optic cables capable of carrying both telephone and television signals are now being developed in Japan.

Of sound and vision

The possibility of TV phones being installed in ordinary households is one step nearer to reality thanks to a powerful fibre optic cable developed by Japanese electronics firm NTT.

The cables are capable of carrying both high definition telephone and cable television signals. Its large circuit capacity means that it can handle up to 6,000 signals simultaneously.

Initially the cables will be used for cable television, which is just starting to take off in a big way in Japan, but ultimately NTT wants to use it to set up a TV phone network. The company has already developed TV phones for the consumer market, and hopes that the new cable will encourage people to buy them.

However, the installation of the cables will not be complete for some years yet. ■

Ultimate fast RAM

The computer speed record set just a few weeks ago has been smashed by a $10 million dollar supercomputer.

In benchmark tests Think Machine's CM-200, a 100-user parallel processing system with 64,000 processors, clocked in at 9.03 gigaflops (billion floating point operations per second) beating the previous record of 8.6 gigaflops which was achieved by Touchstone's Delta Supercomputer (see *Express* 136, page 8).

Though the computer will be commercially available, and indeed several of the machines have already been ordered, Think Machines believes it is unlikely to ever sell more than about 100 of them.

A cheaper model with fewer processors will also be available for a mere $300,000. ■

Double dose of floppies

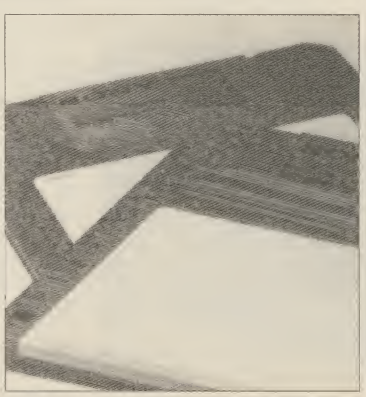
Four-megabyte 'superfloppy' disks are set to become the standard disk format within the next four years, according to Toshiba.

The company is predicting that sales will increase from $20 million to $300 million a year by 1995 and that the prices of both the disks and the drives will fall rapidly.

The 4Mb superfloppies (2.88Mb after formatting) can hold twice as much information as 2Mb disks (1.44Mb formatted). Toshiba sales and marketing director Gene Docherty reckons that while superfloppies will initially cost more than double the price of 2Mb disks, "as they begin to enjoy the 30 to 40 per cent of the consumer market that 2Mb floppy disks enjoy now – and we anticipate that will be sometime in 1993 to 1994 – they're expected to drop in price to less than twice as much, thus making them more economical."

The company has been prompted to make this announcement following the launch by IBM of a 4Mb 3.5-inch disk drive for its PS/2 range. The main advantage of 4Mb floppies is that they will be able to hold larger files created in DTP and CAD programs, and more expansive databases and spreadsheets.

Toshiba has been supplying 4Mb extra high density floppy disks with all new NeXT products since January. ■



• Why buy two disks when one will do? The superfloppy will soon provide double the amount of storage space for less than twice the price.

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WHAT'S NEW

Hardware and software news with no frills. Read the facts.

Get labelled

PRODUCT: Continuous feed laser printer
NAME: IBI 1600C
COMPATIBILITY: PC

The IBI 1600C is the first graphics-capable laser printer which can accept continuous stationery making it, the manufacturer claims, ideal for printing labels and barcode information.

The IBI 1600C can handle sheets up to 9.75 inches wide and 22 inches long.

With a print resolution is 300x300 dots per inch (dpi), the IBI 1600C has a print speed of 16 A4 pages per minute. It has a five level density control which enables high quality printing of graphics. All the most common barcode formats are featured as standard.

The IB1600C is aimed primarily at businesses which involve heavy duty distribution of goods where large volumes of labels and barcodes have to be printed.

Price: £4,500 to £6,000 depending on set up
Availability: Now
Target users: Heavy duty labelling operations, warehouse distribution
Contact: Datac plc on: 061-941 2631
Perceived Competition: The company reckons that it is unique and will carve a niche of its own.

Fortune telling spreadsheet

• This Predict! spreadsheet could help take a lot of the risk out of embarking on a new business venture by dealing in probabilities as opposed to hard facts.

PRODUCT: A forecasting spreadsheet
NAME: Predict! Version 2.0
COMPATIBILITY: PC

Embarking on any new business venture is always a risky business, and *Predict!* Version 2.0 will help you work out just how much of a risk you are taking.

Predict! from Risk Decisions is a spreadsheet-based forecasting program for the PC. As opposed to simply requiring you to enter single values as with normal spreadsheets, *Predict!* allows you to enter a range of values representing best and worst-case situations.

So, for example, a new company might expect to shift x number of units, but could sell up to x, or as little as y. These values are entered on to the spreadsheet, along with other variable factors.

Predict! then performs a series of complex "what-if?" calculations to produce a graph which forecasts whether the company is more likely to make a profit, or a loss!

The program runs under MS DOS or UNIX. As the program is a bit more complex that a standard spreadsheet, the company provides one month's free on-line help to get you started.

Price: £1,640
Availability: Now
Target users: The company says the program's wide range of applications makes it ideal for any sized business.
Contact: Microway Europe: 081-541 5466
Perceived competition: "To our knowledge there is no other product that offers the same features as Predict!" Microway told *Express*.

An Ace station

PRODUCT: 386SX LAN Workstation
NAME: AcerStation SX
COMPATIBILITY: PC

Acer has launched a low profile 386SX machine designed for use in client-server networks.

The AcerStation SX is compatible with all the most popular Local Area Network systems, including Novell, Token Ring, Ethernet and ARCnet. Based on a 386SX running at 20MHz, it has 2Mb of on-board RAM, upgradeable to 8Mb. A built-in Super VGA adaptor is backwards compatible with IBM EGA, CGA, MDA and Hercules graphics modes.

The AcerStation has two bays for drives. However, it is available in a diskless version for added security, as users will not be able to load or remove data or software.

Other options include an automatic internal boot ROM which will automatically connect to the server machine and run the start-up configuration when you switch on. A complete AcerStation bundle includes a 3.5-inch floppy drive, mouse, Windows 3 and MS DOS 4.01 for £1,399.

• Options for the AcerStation SX include a diskless version for security and an autoboot facility.

Price: £1,149
Availability: Now
Target users: Corporate market
Contact: Acer 0753 23024
Perceived competition: Suppliers of LANs

DX performance SX price

PRODUCT: 386/20SX Cache Workstation
NAME: The Factotum 386/20SXC
COMPATIBILITY: PC

Factotum reckons that the performance gap between DX and SX computers has closed so far that people are willing to sacrifice a little speed to save a great deal of money.

To prove its point the company has launched a 20MHz 386SX machine with 32K of cache memory for under £1,000.

The Factotum 386/20SX Cache comes with a 40Mb hard disk and is available in desktop, mini-tower and full-sized tower configurations. The company will further customise the system if necessary, supplying everything from larger hard disks to keyboards that do not click. A system with a colour VGA monitor will cost £200 extra.

"We think our new machine will usually appear to give at least as good a performance as a 386/25DX without cache," said John Cox, marketing manager of Factotum.

Price: £995 (plus £200 for VGA monitor)
Availability: Now
Target users: Small and medium sized business
Contact: Factotum 0635 524404
Perceived Competition: High-end 386SX systems and low-end DX systems

Lean mean machine

PRODUCT: 80Mb 286 Laptop
NAME: Bondwell B310V
COMPATIBILITY: PC

Don't let the size of the B310V deceive you. It might be one of the slimmest laptops you have ever seen, but it's the first 286 laptop to pack an 80Mb hard disk into its circuits.

Based on an 80C286 microprocessor running at 16MHz the B310V has 1Mb of on board RAM, expandable to 5Mb, and has a single 3.5-inch floppy drive. The Liquid Crystal Display (LCD) screen supports 16 grey shades.

Normally powered by six rechargeable alkaline NiCAD batteries, the B310V can, in an emergency, use standard C-sized alkaline batteries readily available in High Street shops (though it will wear them out pretty quickly.

• Never judge a book by its cover, or, in this case, a laptop by its slimness. This B310V has a whopping 80Mb hard disk.

A 40Mb version is also available, but manufacturer Bondwell reckons that it is the 80Mb model which will really appeal to users satisfied with the performance of their 286s, but who need extra storage space, such as sales reps and accountants.

"We believe the B310V is the most powerful portable on the market," said Richard Percy, marketing manager for Bondwell Europe.

Price: 40Mb – £1,599
80Mb – £1,799
Availability: Now
Target users: Sales reps and other business people who are on the move and need more power than a conventional 286 laptop can give.
Contact: Bondwell (Europe) Ltd: 081-365 1993
Perceived Competition: 386 laptops ■

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EXPRESS MAIL

Welcome to Britain's liveliest letters pages. This week you ask:

- Why isn't Commodore taken seriously? (Answer - Who?)
- Why not put a DAT cassette on the cover? (Answer - good idea)
- Isn't it about time you had an 8-bit supplement? (Answer - yes)
- Are games just all the same old code? (Answer - err...probably)
- Who on Earth is Dr Clare? (Answer - A belly-dancing streaker)

Shallow gulps

Delighted to see *NCE* swallowing its pride when it comes to the great CDTV/CD-I debate. On the whole congratulations on a well-written piece – particularly the quote which compared Philips and Commodore to David and Goliath. Perhaps this is a Freudian slip since we all know what happened to Goliath – who didn't see David as a serious threat.

One point which I do wish to stress is that soon Commodore won't have to develop multimedia titles. Simply through CDTV sales and the A690 peripheral, developers will prepare titles because of the size of the installed base. In fact it will be impossible to stop them.

Andrew Ball Commodore UK

I knew editorial were going to 'revise its position just a tad' straight after *Amiga Format* borrowed a CDTV off a developer and wouldn't let *Express* take it away. As such, their new position is this – CDTV doesn't exist and won't ever be mentioned again. Which is to say, Andrew, that if Commodore doesn't let them have one soon they will cry and cry and cry. PLEASE put them out of their misery soon.

CD for all

I am fortunate enough to own a CDTV (unlike, unbelievably, any journalists we know - H F-W) **and therefore read the CD-I preview with great interest. OK, so CD-I has superior specifications but I don't claim CDTV to be the be-all and end-all of multimedia. I would agree that CD-I is the most likely to succeed, but this is due to the big names behind it and the fact that Commodore is not taken seriously.**

With the VIC-20, Commodore 64 and Amiga they consistently broke new ground and now they are the first to offer interactive multimedia to ordinary people at a realistic price. So why does no one take them seriously?

Philips comments about David and Goliath shows ignorance and stupidity. Just remember two things. David won and the bigger they are the harder they fall.

Here's a quick thought, why don't both sides pool resources and set up a world standard? I'm sure it would increase sales for all concerned, and as they're planning to allow re-badged versions anyway, what can they possibly lose?

Adam Wright Northampton

THE REASON 'no-one' takes Commodore seriously is that outside of the games and leisure market it's seen as a third division PC manufacturer doling out dull DOS-in-a-box. This is despite undoubted sales of millions of C64s et al. The idea about a world interactive CD standard is an interesting one, though. But the world doesn't set out to make standards – it sets out to fire furious competition. The argument being that otherwise we'd all end up driving Ladas with a choice of a Skoda every five years. When it comes to the forthcoming CDTV/CD-I war, I reckon the David and Goliath parallel is still a useful analogy. Just remember this – David had the support of the best marketing man in the business on his side – God.

Shurely...

Has CD-I been rushed out? Look carefully at the front cover of Express 136. It seems the 'volume' and 'phones' have been labelled the wrong way round. Nice one Philips.

ONE OF HAYDN'S WINNERS £5

Geoff Hackworth Ruddington Notts

WELL SPOTTED there, my son. God alone knows how Philips managed to inadvertently swap the socket and knob around. Perhaps its designers should write in to Dr Clare Anthony.

Planet Clare

Who on Earth is Dr. Clare Anthony? Is it the wife of that guy on Radio four who interviews famous people about their childhoods?

John Carter Stroud Glos

Dr Clare is a graduate of the University of Vienna, a keen belly-dancer and part-time streaker. She is not related to any radio broadcaster. Next week, she tells me she's on the couch with a young CDTV owner who's favourite software is the Welcome Disk and who desires Spock's control panel. Stay tuned.

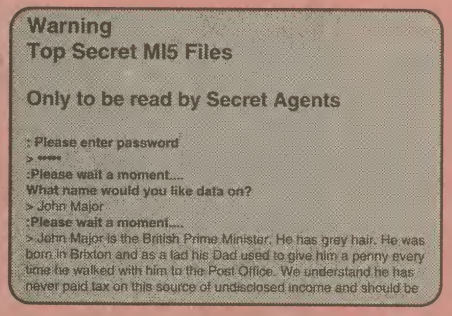
DAT covers

I would just like to congratulate the dude who decided to put an ST/Amiga disk on the cover. Perhaps next time you could put a DAT cassette on the cover as it's well known that we all own DAT machines as well as our ST/Amigas. When are you going to do an 8-bit supplement? My guess is never, but this once I would be glad to be proved wrong.

M A Harris Faversham Kent

8-BIT SUPPLEMENTS eh? Now there's an idea. And one which has already been taken on board. You don't think we've forgotten all our 8-bit chums do you? So, let me shoot this one across your bows. How's about if we ran a regular 8-bit update for the following machines - the Atari XL, MSX, QL, SAM, Speccie, C64, etc, etc. News, new products, reviews, et al. If you're interested send in a postcard which simply says 'I'm all for it boss' and send it

MORE ULTRA-MESMERIC GIGA-CASH LOOT ATTRACTION UTILITIES - PARTS 9 &10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• A screenshot from the most fabulous loot attracter ever. Its author is so rich he now holidays on Venus.

9 **Two years ago I was broke. Now I drive 27 Lamborghinis and take my holidays on Venus. I've accumulated enough money to buy an island staffed by hot and cold running Filipinos, a fleet of Rollers and enough cash to bribe an entire Metropolitan district. How did I do this, I hear you ask. Quite simple. In the early days of computing, my cousin (currently residing Parkhurst IOW) adapted the Remote Operating System (ROS) software for CP/M machines to open up a Bulletin board with a screen like the one enclosed.**

After typing in the password, it asked for a name and code and on entering this produced a text file about the person in question. These files were put together from company press releases, magazine articles, who's who and Desmond Bagley novels. My cousin had it set up on his PCW and I accessed it via the phone line from my Atari 65. We approached various pillars of industry with "Access to the file that the security services held on them" for money and in four short months had extracted an eight figure sum from the vain and unwitting.

Ged Ryder, Rio De Janeiro

10 **Loot? I got loadsa loot. So much loot that I don't know what to do with it. How? I leased a colour photocopier and ...Come on, you're reading a computer magazine, you don't need half a brain to figure out what a colour photocopier plus a fifty pound note equals.**

Nick Cash, Parkhurst

ON THE COUCH

This week Dr. Clare Anthony spreads MAYNARD WILSON of DAVEYHULME, MANCHESTER across her leather couch for a quick spot of frenzied psycho-analytical interfacing. You could be next! And win a fiver into the bargain too! Just write in with the name of your machine, your favourite software, and the machine you'd most like to own.

Our resident psychiatrist, Dr Clare will then remotely probe the inner reaches of your psyche. It's fun, it's painless and it won't cost you £200 an hour either. So write in for a free diagnosis to : Leather Couch Clare, *New Computer Express*, 30 Monmouth St, Bath BA1 2BW.

So Maynard are you sitting comfortably? – then lean back please
● MACHINE OWNED:
ICL mainframe
● FAVOURITE SOFTWARE:
Driller
● DESIRED MACHINE:
System X telephone exchange

You poor boy. We are dealing here with a process of extreme introjection. Your frustrated desire for your own personal telephone exchange is clearly a plea for more effective communication with the outside world. This, coupled with a fixation with *Driller*, will cause many problems. It's obvious really. *Driller* is, of course, based on the Freescape 3D modelling system – and there we have it. 'Free' and 'Escape' merged into a single conceptual unity, masquerading as a coherent alternate reality.

The ICL mainframe is the causal imperative here. You have mistakenly identified the size of an object as an index of its inherent pleasure quotient. And as we Freudians know only too well... mainframes are deeply dissatisfying. They may promise the true power of machismo, but deliver only the bare mechanics of pleasure.

DIAGNOSIS: Buy yourself a Sony Unix notebook, a Mobira Cityman portable phone, a pale pink Paul Smith suit and start talking to girls. You will shortly realise that girls are an alternate reality too and will be far more responsive than a digital telephone exchange when you receive an engaged tone.

Yo Beeb Boss

I must protest in the strongest possible terms at the mention of my name in your magazine. I was not responsible for the Micro Live or Electric Avenue TV programmes. You should address your complaints to Fred Harris and Lesley Judd.
Michael Checkland BBC London

I SUPPOSE it is a little unfair to attack the Director General of the BBC for the quality of its computing programmes. Perhaps I should be addressing the controllers of Channel Four, ITV and BBC2 for their remarkable reluctance to commission a TV series on computing over the last 10 years. Here then is another timely cut out coupon you can send to the controller of your choice. Better still send it to Gus Mcdonald, 'Right To Reply', Channel Four, 60 Charlotte Street, London W1

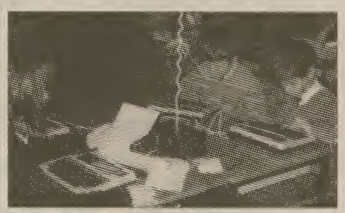
Dear TV Controllers,
I, for one, am completely appalled by the crass absence accruing to any TV series dealing with computers, not aired since the birth of an alternative to BBC 1 television. I am so full of snooker coverage and American import murder re-runs that in my dreams I wear a waistcoat and dickie bow while roaming around with a blue-chalk tipped M-16 rifle. Since there are more households owning computers than there are snooker cues owned by potential murderers why can't I have my own programme?
***New Computer Express* magazine's Haydn Fitz-Williams should present it and be paid at least £50,000 a year along with free licence stamps.**
Yours sincerely,

(Photostat this 10 times and sign it with 10 different names - I'll re-imburse you the cost of the stamps when I get my first pay cheque)

to 30 Monmouth St, Bath BA1 2BW. If we get enough then you're on. Got to be worth 22p ain't it?

Revealed

Could you please print a picture of the *Express* staff. It would help me a great deal if I knew what you all looked like when reading your magazine. I might then take you more seriously.
Gordon Thorpe Mansfield Notts



JUST FOR you Gordon – here's a pic of some of the *Express* staff hard at work on their trusty Tandy 102s – from left to right the legendary Julie Tolley, Obergrupenfuhrer Andy Storer and King of the Newies Dave Golder. Note the infra-red, fibre-optic network linking them all together.

Medway Boy

Re: The piracy debate. the real pirates are those software companies who continually release sub-standard and often bugged games for over-inflated prices. Certain software development houses only have one 'source code' for a certain type of game so each time they release a new title all they are really doing is getting some new graphics drawn and spending a few weeks tarting up their old code and re-selling it again and again.

The unfortunate thing about this is that people will be duped into buying the crap because half the development cost went on buying a big name film licence so that parents will unwittingly buy the product for their children.
Zippy - the Medway Boys

OK ZIPPY and sorry I had to cut the letter. What you say makes a lot of sense – I agree a lot of games are just re-codes of proven routines. I guess it's up to magazine reviewers to point this out, but more often than not they don't bother. Still, I don't think that sub-standard product is any excuse for cracking. Why bother, if it's crap in the first place?

JANETware

Public domain....shareware - we hear so much about these software forms recently. I am more interested in non-games software packages than games. At Lancaster there is the National Public Domain Software Archive which holds many PD and shareware packages for the Amiga, PC, ST, Mac and Unix. This software is accessible via JANET (Joint Academic Network at uk.ac.lancs.pdsoft with login name: pdsoft and password: pdsoft. You can also call direct on 0524 843878 . There you go. Just one question - can one send E-mail to NCE from Janet/Internet sites?
Matthew Smith Glasgow

YOU SURE can Matthew – it takes its time, though. We've had stuff delivered over CIX, but nothing yet via Aspects. See the E-Mail detail box for the phone numbers.

Potential waste

I thought the review of the NeXT was great even though it took so long in arriving. One problem though, for a machine of such a high spec and great potential why is there no facility for reading to Mac or PC disks? I thought some kind of compatibility would be essential for sales.
Martin Clark Coventry

GOOD QUESTION. I suppose it's the same problem as that faced by the Archimedes. I'd have thought any new machine these days should feature at least a PC disk read/write capability and indeed on the NeXT this was originally promised. Somewhere along the line it seems to have disappeared. As for Mac compatibility – well the Mac disk is the most peculiar format this side of Pluto, but I expect some techie NeXT freak in Silicon Valley will bring out a Mac emulator sooner or later. I bet Steve Jobs still has rights on the source code!

Forgive me

Whatever happened to 'Where are they now"?
Lucy Tyler Stoke on Trent

NO ONE could find them any longer. ■

Write Now

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AMIGA

- **What's the best way to get images on to your Amiga?**
- **Why do Americans pay less for their systems?**
- **Service with a smile at the Amiga repairs centre**

WHICH DIGITISER?

When it comes to playing around with images the Amiga is unbeatable. Here's a round up of my current favourite digitisers – devices that transform analogue images attained through scanning, from a video signal or some other means into file formats that computers can handle.

● VIDI-AMIGA (Rombo) – Rombo's *Vidi-Amiga* has been around for a couple of years now, but it still remains one of the cheapest and best Amiga video digitisers available. Its greatest selling point is that it operates in realtime, therefore it is ideal for grabbing frames (in monochrome only, unfortunately) from a domestic videorecorder.

However, with Rombo's *Vidi-Chrome* software upgrade, *Vidi-Amiga* can be made to grab colour images. It uses the now familiar system of Red, Green and Blue (RGB) filters to build up a colour frame from three exposures.

If you're working with nothing more than a home VCR and you have no access to such luxuries as a video camera, then Vidi-Amiga is ideal.

☎ Tel: 0506 414631

● DIGIVIEW 4 (NewTek) – The premier Amiga digitiser keeps on improving. With the release of version 4 of the digitising software, NewTek's unit is perhaps the most complete digitising system yet produced for the Amiga. It can grab in all Amiga screen resolutions with anything from 2 to 4096 colours.

To grab colour images, *DigiView* also uses the now familiar RGB coloured filters approach.

To get the very best from *DigiView*, you really do need a monochrome video camera and at least 1Mb of RAM. Also, *DigiView* can be rather slow at times, although the results are second to none.

If image quality is your most important consideration, then *DigiView* is the only choice.

☎ Tel: 0101-913-354-1146

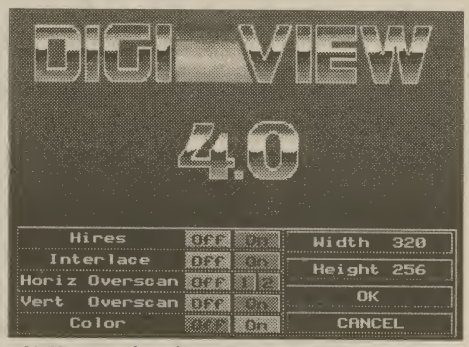
● FRAMEGRABBER (Marcam) – If you have £600 to throw away, then you won't go far wrong with Marcam's *FrameGrabber*. It can digitise in full colour in realtime from just about any composite video source including VCRs and colour video cameras.

The results aren't quite as detailed as those produced by slower digitiser like *DigiView*, but then that's the price you get for realtime operation.

☎ Tel: 0604 790466

● COLOURPIC (JCL) – For £100 cheaper than Marcam's unit, JCL's *ColourPic* offers similar facilities. Once again it operates in realtime with full colour grabbing, although the results are far from perfect. If it's realtime colour grabbing you're after, then you're probably better off forking out the extra £100 or so for Marcam's offering.

☎ Tel: 0892 75791



• DigiView is perhaps the most complete Amiga video digitising system available. It supports all the standard Amiga screen modes plus its own Dynamic modes which allow 4096 colours to be displayed in High Resolution.

● DATEL GRABBER (Datel) – I haven't actually had a chance to play with Datel's new video digitiser yet, but I'm reliably informed that it does the job very nicely, thank you. It is very similar to Vidi-Amiga in terms of features, which is no bad thing. For a full review check out last week's copy of *Express*.

☎ Tel: 0782 744707

FROM OVER THERE

The Americans have it cushy, that's for sure! While the rest of us are having to suffer Commodore UK's pricing policies, the American's are picking up Amiga systems for a song.

Take, for example, the Amiga 3000. In this country even the basic 16MHz 50Mb HD machine will set you back around £2,500 (although you can buy it cheaper by shopping around). In the States you can pick up the same machine for the equivalent of £1,500!

The rest of the range is as follows: A3000-25/50 – £1,750, and the A3000-25/100 – £2,350. The price rise for the 100Mb version of the 25MHz 3000 is perhaps a tad high, but then Commodore has always charged extortionate prices for hard drives (I could buy a 100Mb Quantum hard drive for £300).

Even better, Commodore US is currently offering a very generous upgrade deal that basically allows you to trade in just about any Commodore-manufactured computer (not just an Amiga) and save up to £750 off the price of an Amiga 3000. What's more, they don't even want the computer –

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proof of ownership is more than enough to keep them happy, so you still get to keep the computer!

If you own a Commodore VIC20 (all 3.5k of it!), C64, C128, or any type of Amiga, all you have to do is write the serial number on the cover of the original owner's manual and take it to an authorised Commodore dealer who should then give you up to £750 off the price of a spanking new Amiga 3000.

Obviously this varies according to the specification of the 3000 you buy, but you've got to agree it's still one hell of an offer! What I want to know is why can't Commodore UK come up with offers like that? I'd trade in my trusty old C64 straightaway!

AMIGA RETURNS

Well, Commodore's National Repair Centre has finally returned my trusty Amiga 2000. Those of you who read *Express* on a regular basis may well remember the troubles that I had encountered (it blew up, basically), but everything is bright and rosey now that my machine has returned to the land of the living.

Like most Amiga journos, I'd heard many alarming tales of woe concerning the National Repair Centre, but I must admit how impressed I was by the service extended to me. Commodore paid for everything including the cost of sending the faulty machine to and from the NRC.

Most manufacturers usually ask you to send the machine to them at your own expense. so you can imagine how surprised I was when Commodore picked up the tab.

Overall, I feel that I have received a first class service from the National Repair Centre. In fact, I'm so impressed that I'm even thinking about extending my guarantee!

Jason Holborn

WHY RESTART WHEN YOU CAN HAVE INFINITE LIVES?

If you're bit of an Amiga gamester, then you'll love these cheats sent in by *Express* reader Julian Smith from Sheffield in South Yorkshire.

***Line of Fire* – Type OPERATION FERRET (with space) during the game to activate cheat mode.**

***Predator 2* – Pause the game and type YOUR ONE UGLY MOTHER (with spaces), unpause the game and you will have infinite lives.**

***Super Cars 2* – Type in I WALK THE HILL (with spaces) as player 1's name and INWARDS for player 2. You will now have 99 of every weapon. You also automatically qualify regardless of how badly you do.**

***Crystals of Arborea* – Go to the main character screen, select 'Jarel' and click on the bottles icon. Now press 'CTRL' and 'V' together to get full life points and all the special abilities.**

ST

- **A MIDI sequencer that offers something new**
- **Ever wanted to run DOS on your ST? Now you can**
- **Two summer blockbusters due from US Gold**

WHO MADE WHO?

Recently, I had a conversation with the public relations person from a large software house. She was telling me about the Chicago Electronics show, and how the buzz words were console, Amiga and PC. I enquired about the ST's position in the States and was informed that everyone Stateside feels that the ST is in a declining market.

The comment struck me as peculiar, for the simple reason that the ST was never really a market in the States anyway. For some reason the great American public jumped on the Commodore bandwagon and put up with glorified consoles.

Meanwhile, anyone in Europe with an iota of sense was buying an ST. However, like it or not, the American public's opinion of the ST has a great bearing on the future of the machine on this side of the pond.

It amuses me to hear someone say that the ST's market is dwindling because statements like this tend to be self-fulfilling. There's absolutely no reason why the ST's market should be dwindling; sales are consistently up with the Amigas, there are just as many ST's in existence as Amigas, the ST is the preferred programmers' tool and it's useful for more than just playing games.

Perhaps the whole problem stems from the fact that the ST *isn't* just a games machine. If the only use for an ST was playing games, then the influential software houses, both here and in America would probably be complaining that the Amiga was too over-priced to be of any use in a computer games market.

SOLID GOLD MIDI?

There are so many sequencing packages on the market at the moment that you begin to wonder exactly what a new package can add to MIDI sequencing on the ST. Hybrid Arts reckons that its *EditTrack Gold* sequencer does just that and it has launched the program this week.

EditTrack's main feature is the 60 track recording system. The program functions in the time-tested tape control edit format. This means you simply click on RECORD to start up, on PLAY to

Continued on page 21 ➤

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However, Amiganuts and the author, Teijo Kinnunen, want it to be within the reach of all Amiga enthusiasts, so we are keeping the price down. You can purchase this great program for only £10.00 within Europe (£15.00 for non-European). The price includes return post and packing. Payment in pounds sterling only, if ordering from overseas, send a bankers order/eurocheque etc. (Credit card orders will not be accepted).
A full instruction manual for this program will become available later, but due to the high costs involved, it will be quite expensive!
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playback and on fast forward or rewind to step though your MIDI sequence.

If you have ever wished that you could take back a quantise, or an edit, then you'll appreciate *EditTrack*'s non-destructive editing facilities. With this function you can retrieve any data that you've modified, as the program saves the set-up even while you work on it.

In terms of editing, the package has: system exclusive recording and playback, region editing, graphic and text editing, insert/delete any event at any time, copy, shadow, mix, unmix, quantise, humanise, transpose, velocity edit and punch in/out.

The package costs $120 including shipping costs and is available only from Hybrid Arts in the States. Write to 8522 National Boulevard, Culver City, CA 90232, USA
☎ Tel 0101-213-841-0340.

BIG BLUE ST

Alright, so no-one enjoys using a PC, but you may find yourself in a situation where it's forced upon you by your employers or school. The problem lies in bringing your work home with you. PCs use some pretty ropey programs which the ST doesn't support. So how do you use those files at home?

The answer lies in emulation. There's an emulator for all the better known computers available on the ST and the latest of these is a new PC emulator called AT Speed C16 which costs £249.

The emulator comes in the form of a circuit board which you fit directly inside your ST. Once it's in place you power up some system software, bung in a DOS disk and away you go.

The AT Speed C16 is built around an 80286 chip, which is a standard PC processor. The unit is a very fast 16MHz board, which means you'll suffer no loss of speed between an office PC and your ST emulating one. It should be noted however that you'll need at least a 1Mb ST in order to get the standard 640K RAM space of PCs.

Write to Compo Software at 7 Vinegar Hill, Alconbury Weston, Huntingdon, Cambs PE17 5JA.
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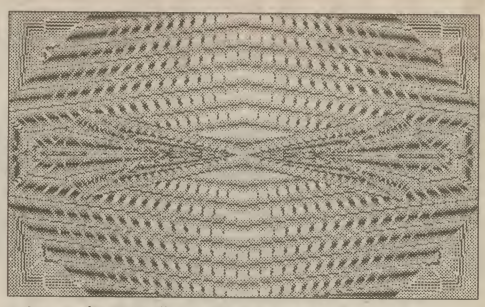

• Can you dig it? Really Kozmik,man. Create your own hippy sixties disco with **Kozmik 2.**

TOTALLY SPACED PD

Sometimes it's nice when you come across a public domain program which serves little purpose, but is lots of fun to play around with anyway. *Kozmic 2* is just such a program; it does nothing but display pretty patterns.

The program itself has been written using the STOS BASIC language. The main menu screen comprises a series of icons which either draw or modify graphics on a workscreen.

To create an effect you simply click on a likely looking graphic and then let the program draw it.

Back ground pictures can be loaded into memory and the palette on these can be modified freely to create just the right psychedelic pattern. Then such effects as crystals, pie graphics, horizon boxes and ovals can be super-imposed on the picture.

Once you're happy with your masterpiece, you simply click on the cycle icon and let the waves flow over you... man!

The graphics are a great accompaniment to a session with Inspiral Carpets, or even as a light show at a club. The program's available from all good PD libraries.

Andy Hutchinson

Andy Hutchinson is news editor on the UK's leading ST magazine, ST Format, *out every month.*

LUCASFILM SCORCHERS

Convinced that the summer months aren't lean for software houses at all, US Gold is going to be launching two mammoth graphic adventure games onto the market: *Monkey Island II: LeChuck's Revenge*, and *Indiana Jones and the Fate of Atlantis.*

***Monkey Island II* revolves around the grim pirate LeChuck's return to haunt Guybrush Threepwood, the star of the first game. The designers promise loads more gags and a new definable skill level where you get to play completely different puzzles depending upon your adventuring experience.**

The Indiana Jones game is all about the search for the fabled land of Atlantis. The programmers promise 200 rooms and 100 pieces of original computer artwork. The game also includes the IQ level, which plots exactly how well you're doing. Over and out.

• Indiana Jones and the Pirates of Doom: Indy and Monkey Island feature in two high profile graphical adventure releases from US Gold this summer.

SPECTRUM

- **UBISoft's collection of ultimately quite good stuff**
- **SAM software flourishes in the public domain**
- **To helpline solution to all your gaming problems**

COMPILATION RAVE

Here I go again, raving about a compilation! But raving is justified when talking about the soon to be released *Ultimate Collection* from UBISoft. This consists of six games of varying quality but is lifted from the run of the mill, common or garden, plain vanilla flavoured compilation by the inclusion of *Stunt Car Racer*.

This super fast, 3-D solid graphic driving game has a place in the heart of many speed freaks and rightly so. The Speccy version was pretty amazing, I thought, and ticked over at a fair old rate as you desperately clung to the undulating, banked track situated high above the ground.

It was ample proof, if any is needed, that the Speccy can still handle a complex mega game. So rich 16-bit software houses, take note. Cut your losses and bring some Speccy conversions out soon!

As well as *Stunt Car Racer* the compilation also includes:

- *Skate Wars*, a good future sports simulation.
- *Zombi*, an arcade adventure based on the Romero horror film.
- *AMC*, which I admit I don't know a thing about.
- *Pro Tennis Tour*, a good, straight forward tennis game.
- *After The War*, a hard action adventure from Dinamic.

All in all pretty good and the inclusion of *Stunt Car Racer* helps lift it to a higher level of gameplaying nirvana. Price is £14.99

SAM PD A PLENTY

If you're a proud SAM owner who feels a bit neglected in the software department it would be well worth your while to check out the public domain.

CMS PD library has got a wealth of good quality stuff on offer and all at the bargain price of £1.50 per disk. Its line up includes *Mega Pack 1*, a combination of soccer management and shoot-'em-up game, a SAM version of *Tetris*, an Integrated Utilities disk which comprises a monitor, disk copier, sprite and sound tutor plus others and *SC_Compressor*, Steve Nutting's screen compressor.

And then there's the demo section which is enough to make a poor, impoverished SAMster drool with delight. Disks in this section of the library include Guy Middleton's acclaimed film demos (*Total Recall* and *Robocop*) and a Demo Disk Pack. This combines lots of graphic demos and all the groovy visuals, scrolling messages and all the other usual effects that goes with them.

Latest arrivals are if anything even more droolsome. There's a two disk *Aliens* film animation demo which apparently contains some very high quality digitised sequences from the film.

On a lighter and decidedly more fluffy vein *Blink Disk 3* offers some high quality audio delights from Michael Jackson and Kylie, among others.

And there's lots more stuff on the way according to chief librarian and director David Cowell. Even as we speak he's writing a music utility called *Soundtracker* which he says, "will be heavily based on the excellent PD program for the Amiga."

CMS PDL has the kind of broad based, good quality PD the Coupé needs, so give it support!

Send a blank formatted disk (or 80p) plus an SAE for a catalogue disk which includes an on-screen magazine and graphics demo to CMS SAM Coupe PDL, 70 Donald Drive, Chadwell Heath, Romford, Essex RM6 5DU.

GAMERS ANONYMOUS

Crazed game players, salvation is in sight! Jon Rose, hacker by appointment to this column has restarted his helpline service for Speccy games so take your head out of the oven and prepare to score highly!

You can now write to John with any games related queries and for the small sum of 30p plus an SAE he'll endeavour to help you all he can. If you manage to stump him, which isn't very likely by the way, then you get your postage and the 30p refunded.

The only restrictions to this fair sounding deal are firstly, no maps or full solutions as Jon tells me he can't draw and that full solutions often spoil games. Secondly, Jon implores, "can people please be as specific as possible about their problems; "No, 'How-do-you

Continued on page 24 ➤

THE COMPLETE(ISH) A-Z OF MULTIFACE POKES

A huge and hefty tome landed on my doormat this week. Surprisingly, it wasn't another *Reader's Digest* book I hadn't asked for but instead came from hacker Ashley Price and was a publication chock full of Multiface pokes for older Speccy games.

Enterprising sort that he is, Ashley has put this together himself with the aid of his Plus 3 and Tasword. The book contains and printed pokes for games ranging from *Acro Jet* (POKE 25148,10 for infinite lives) to *Zorlyx* (POKE 50476,0 for infinite time) with about another 300 in between.

The whole thing is functionally laid out and provided Ashley typed everything in properly Multiface owners should find it useful, if pretty expensive. The asking price is a whole £10 which doesn't compare that favourably with the professionally produced YS Tipshop Tiptionary, for example.

But you do get a lot of Multiface Pokes for your money and lots of long forgotten oldies are covered so you might consider getting a copy from Ashley Price, 11 Spences Court, Spences lane, Lewes, East Sussex BN7 2HE.

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complete-snotoids-from the planet Technoyawn?' letters, please..."

That seems fair enough. Jon has a vast horde of tips, hints and pokes for more games than you'd think any one man could ever play and if he can't help you, then give up!

Contact Jon Rose at 'The Annexe', 26 Barrack Lane, Bognor Regis, West Sussex. PO21 4DA.

NEW ZAT

It's always nice to see a new issue of *ZAT*, a Speccy/SAM fanzine that's a lot better than some of it's professionally produced, non-Future counterparts languishing on the shelves in Smiths.

This latest edition is the first to be printed as opposed to photocopied and sees the arrival of eight new contributors, some recruited from this column. The contents are well balanced between zapping and coding with game reviews, public domain section, a report on the last All Format's Fair and programming section devoted to PAW/GAC, Speccy and SAM.

On the slightly more unusual side there's the latest lavishly drawn episode of *Sentinel* (*ZAT*'s regular comic strip), sections devoted to books and comics and an interview with the editor of *Crash*.

All this costs 80p and a stamp from *ZAT*, PO Box 488, Tweedale, Telford, Shropshire TF7 4SU. A veritable snip!

Robin Alway

C64

- **Does the C65 mean the C64's days are numbered?**
- **Vendetta's turbo action developed into a full game**
- **The cheap way to create masterpieces of art**

A NEW ERA

I'll be the first to admit it; the announcement of the C65 took me totally by surprise. Come to think of it, so did the C64GS.

But will the 65 (sounds strange, doesn't it?) merely be a flash in the proverbial pan? A 6502processor, supporting 4096 colours, with a built in 3.5 inch drive sounds like a cross between a C64 and an Amiga.

Very little is known about it presently, so software houses are speculative about producing software for the machine. And if there's no software support, Joe Public will be very indecisive about 'upgrading'.

If everyone who owns aC64 buys the machine, that will leave a stockpile of old C64s – is this a cunning plot to finally kill off the world's best selling computer? No,Commodore would not be so crass.

But who exactly is it aimed at?

Obviously, it is the missing link between 8-bit and 16-bit computers, but if only software especially written for it is compatible then C64 owners (or potential new owners) would be reluctant to take the plunge.

Let's face it, 4096 colours is an artist's dream, but will there be extra memory and an improved sound chip to complement this plethora of colours?

I'll return to the subject quite a lot over the next few months, but what are your views? Write to me at *New Computer Express*, 30 Monmouth Street, Bath, Avon, BA1 2BW.

PEDAL TO THE METAL

Anyone who's played the absorbing arcade adventure *Vendetta* will remember the exhilarating racing interludes. So popular was the racing section, System 3 decided to expand the concept into a full-blown game, called *Turbocharge*.

Surprisingly the game is not being coded by Stan Schembri (the guy who coded the original, not to mention *Ninja III*). Instead System 3 has roped in someone with considerable experience in the 3-D game field.

He is none other than Chris Butler, whose previous games just happen to be *Hypercircuit*, *Z*, *Commando*, *Ghosts 'n' Goblins*, *Space Harrier*, *Thunderblade*, *Power Drift* and *Ninja Spirit*.

If anyone can produce a fast and playable 3-D game, he can, and has been doing so for the last year or so.

The game is based on a worldwide drugs clampdown, with our hero attempting to capture a number of notorious drug barons.

Each baron must be pursued with a view to preventing him escaping over the state border with his booty. Police cars provide support for most of the journey, but as soon as you cross the border (into enemy territory) you're on your own!

There are plenty of other road users to make your pursuit hazardous, not to mention some fierce enemy helicopters. Thankfully your vehicle is equipped with some serious firepower (machine guns and rocket launchers to name but two) to be used to destroy the enemy, and to stop the drug baron.

You could say the game is *Chase HQ II* with an attitude! The roadside objects move in smooth, fast 3-D, and there are plenty of hills, dips, bends, and forks to make life a touch more difficult. And as you'd expect from Chris Butler, it is blindingly fast.

Turbocharge is due for release in August, and should be something really special; I'm sure that fans of Vendetta will adore it.

Incidentally, the game is *not* planned for release on cartridge; sales of cartridges have been poor to say the

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least, which is why *The LastNinja III* only appeared on cassette and disk.

FINE ART

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Everything is controlled via joystick or mouse, and the sub-menus pull down from the main status panel; very user friendly indeed. Loading and saving (on both tape and disk) is easily controlled and virtually idiot proof.

The whole package is a joy to use, but indeed lags behind the *Advanced Art Studio* in certain areas. However, if you're on the look out for a decent art utility then this is the one to go for.

FSSL Computer Software has this little gem on offer for just £6.95, and it's an absolute steal. Contact; FSSL Computer Software, Defford Road, Pershore, Worcs, WR10 1AZ.

Andy Roberts

CARRY ON KICKING: ESSENTIAL LAST NINJA POKES

To complement the review last week, here are some handy cartridge POKEs to give you infinite lives for both the cassette and disk versions of *Last Ninja III*.

CASSETTE VERSION		DISK VERSION	
Level 1	28986,165	Level 1	28962,165
Level 2	29231,165	Level 2	29207,165
Level 3	28824,165	Level 3	28800,165
Level 4	29059,165	Level 4	29035,165
Level 5	29212,165	Level 5	29192,165

CPC

- **How Protext can make your CPC PCW compatible**
- **Will the CPC be able to cope with the Final Fight?**
- **Could you take AC Milan to the European Cup?**

GOLDMARK GLUT!

Goldmark Systems has a whole host of new and updated products just out.

First, the latest version of *Nirvana* is now ready, and it is compatible with the new 6128 Plus. The only things that won't work are those relating to tape functions – the Plus doesn't have a tape port. The price remains the same: £150 on disk, £22 on ROM.

Goldmark's label-printing program has also had an update. It now includes a font editor. The price is, again, unchanged at £12 on disk.

Want an 8-bit printer port? KDS ports are no longer readily available, so Goldmark is marketing its own. The full RRP is reckoned to be £29.95, but there's a special introductory price of £19.95. The port is actually built into the (1.5-metre) lead, so it's all pretty neat. And the set-up is 'transparent' in use, so you can leave it connected all the time.

For machine-code boffins only is a Z80 simulator. This program lets you do things like single-step through ROM code, sort out programs that overwrite reserved areas of memory and more. I'll give it a more thorough going over sometime soon. Price? £15 on introduction (full price £19.95).

There's more stuff coming up from Goldmark which I'll try to squeeze in next time. In the meantime, if you want to find out more about any of the above, the address is: Goldmark Systems, 51 Comet Road, Hatfield, Hertfordshire AL10 OSY.

☎ Tel: 0707 271529.

CONVERSING WITH A PCW

Here's something I bet you never knew – the CPC and Amstrad PCW versions of *Protext* are identical. Well, as near as dammit, anyway. The PCW and CPC have very similar internal architecture and, in fact, the CP/M version of *Protext* is the same for both machines. You simply configure a start-of-day disk for the relevant machine from the master provided.

Protext works identically on both machines (except that the PCW has twice the memory) and files created on

Continued on page 27 ➤

★ ATARI ST ★ ATARI ST ★ ATARI ST ★ ATARI ST

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ATARI

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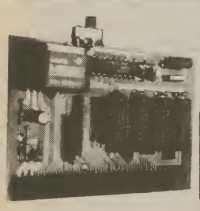

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N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

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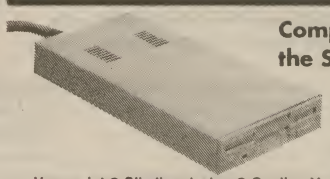

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one machine can be read and edited on the other. Handy, eh?

There's only one small proviso. The PCW uses disks formatted to 173K, which the CPC can't make head nor tail of (it'll do a directory, but gets hopelessly tangled up if you try to read whole files).

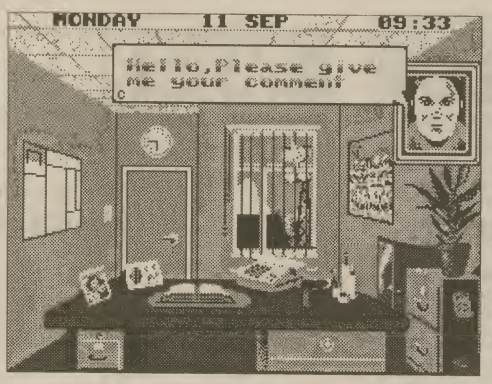
The CPC's standard formats are, of course 175K (system) and 178K (data). The thing is, however, that although the CPC is quite fussy, the PCW isn't. It's perfectly happy with 178K disks. Using *Protext*, you can even format 178K disks on the PCW! As a result, if you want to edit files on both machines, simply use 178K disks.

The BASIC version of *Protext* you can get for the CPC (and the ROM version) doesn't work with the PCW. But the files it creates can be edited as normal with the CP/M version of the program – ie on the PCW.

EUROPEAN SUPERLEAGUE

Yup, it's another footie management sim. Normally, I'd keep these away with a very long stick (they seem to make about as much sense as a Stuka management sim, or a text-only arcade conversion) but *European Superleague* boasts one big difference. It's got graphics! But first, the plot...

Superleague lets you manage any of a number of top European sides, like AC Milan and Barcelona. You can do all the usual manager-type things, like hiring and firing players, and your aim is to beat seven other teams to collect the coveted European Cup.



• LEFT: This is your office, where all the work (oh yeah, sure) gets done. Uh oh – you've got to give this reporter a quote...

• RIGHT: While the matches are being played you get a running commentary and pretty pop-up pictures illustrating the action.

Your office is the nerve-centre of your whole campaign. To check your diary, or make a telephone call, simply pick the appropriate object with your on-screen pointer.

The diary keeps you up to date on all your appointments and tasks – skip too many and the team's morale suffers. Or you can open up the filing cabinet to check up on all those important player and match facts. And keep an ear open for telephone calls. If it's the press, mind what you say.

As with all footie management sims, the matches themselves are outside your control. As the game progresses you do get a running commentary, though, and pop-up pictures illustrating the action. Compared to most games in the genre, it's almost like being there!

European Superleague is still one for the strategists not the arcade fans, but altogether it's very nicely presented and deep enough to have you struggling for some time to come. The graphics are all pretty static, but they're very nicely done. There's not much sound to speak of, but some of the effects are impressive – the ringing telephone is very realistic!

You can pick up budget footie management sims for two or three quid now, so *European Superleague* is up against it as a full-price product. Having said that, it really is just about the best of its type.

FINAL FIGHT – FINALLY

I have it on good authority that *Final Fight* is fastest, most frenetic beat-'em-up in the arcades today. And now US Gold is all set to release it on the Amstrad!

Quite what the CPC will be able to do with a game designed for umpteen-million-bit processors and trillions of colours remains to be seen, but the plot alone is brilliant.

The mayor of New York's daughter has just been kidnapped by the Mad Gear gang. Now the mayor, not surprisingly, has got a bit uppity about this. Instead of getting the FBI, CIA and all the rest on the case, though, he's ripped open his shirt, tied his necktie round his head and gone after the Mad Gear gang himself.

Funny, although American politicians are frequently mad as hatters, they're usually bumbling old relics too, so this athletic prowess in a public official is quite something.

You control the mayor as he charges after the evil kidnappers. Whether his daughter is rescued or not is all down to you.

Sounds pretty gnarly, huh?

Rod Lawton

Rod Lawton is editor of Amstrad Action, *packed full of CPC news, reviews and information every month.*

PC

- **DOS 5.0 has arrived, but how easy is it to install?**
- **More utilities with a DOS 5.0 flavour from Norton**
- **Fight in the Gulf War with F15 II data disks**

IT'S HERE!

DOS 5.0 has finally been released, featuring some long-awaited memory management and task swapping facilities that should solve problems which have plagued DOS 3.3 users for years. The £69 retail upgrade package is available now – or so it says here.

DOS 5.0 is smaller than DOS 4.0 but, intriguingly, only slightly larger than DOS 3.3. It's major new feature is that it will load most of itself into the High Memory Area – the first 64K of extended memory when using PCs equipped with 286 and higher processors.

PCs using 386 or 486 chips can also load device drivers and memory-resident programs into free memory between 640K and 1Mb.

However upgrading may not be totally painless. Third-party hard disk drivers may need to contact the vendors for updates. In some cases, such as with Wyse DOS 2.11 and 3.1, you will need to re-partition their drives. In addition, some older machines will require replacement of the ROM BIOS.

More news soon!

☎ Microsoft is on 0734 500741

NORTON 6.0

Version 6.0 of *Norton Utilities* is on the way. It will take advantage of features specific to DOS 5.0.

The upgrade includes NDOS, a new DOS enhancer that reduces the amount of memory DOS requires. The Norton UnErase utility takes advantage of DOS 5.0's Delete Tracking and Mirror File features to recover data.

The upgrade, which is backward compatible with earlier versions, also automatically loads its memory-resident programs into high memory using DOS 5.0's memory manager. Norton Utilities works with the DOS 5.0 Task Switcher to detect task switches, and guards against interrupting a disk.

No UK release date yet but, in the USA it is listed for $179; upgrades from previous versions cost $39.

TIME TO PUBLISH IT

Timeworks is shipping upgrades to the PC versions of *Publish It*, its page layout package. Out now in the States, *Publish It 2.0* for DOS includes a text auto-flow capability, which automatically adds the necessary pages to a publication when you import a text file.

Other text features include the ability to wrap text around the inside contour of any graphic or polygon shape.

Publish It 2.0 for the PC has a retail price of $249.95. Users of previous versions of either package may upgrade for $49.95.

☎ Tel: 0101 800 323 7744.

COMMS SOLUTIONS

London-based Supply Solutions has been shouting at me recently: "Tell 'em [that's you, dear reader] about our modems!"

It appears that the crafty cockneys are the UK distributors for Supra modems. I have yet to see these beasts in the flesh. However, Supra has a reputation for quality and Supply Solutions has engineered some interesting prices.

- A basic 2400 baud modem costs a measly £120.
- The 2400MNP features MNP 5 compression to give you an active throughput of 4800 baud It costs £80 (internal) and £165 (external)
- The 2400 Plus offers MNP 2-5 and CCITT V42bis providing a possible throughput of 9600 baud for £220
- On special offer throughout the summer is the 9600 Plus offering all of the latter correction/compression features. It will set you back £395.

☎ Tel: 081 566 3639.

F15 II – GULF DISK

Microprose is to release its first data disk for *F15 Strike Eagle II*. Based on the Gulf War, Microprose UK had no details on price or availability.

However, I managed a quick word with Microprose's project leader in the States. So what's new ?

"The most obvious thing is a whole new 3-D world, with lots of new objects and targets. The area includes all of Iraq

Continued on page 28 ➤

SHAREWARE II: THE RADIO HAMS STRIKE BACK

This week, in the specialist shareware spot, I'll be looking at... HAM Radio! There, betcha thought it'd be databases.

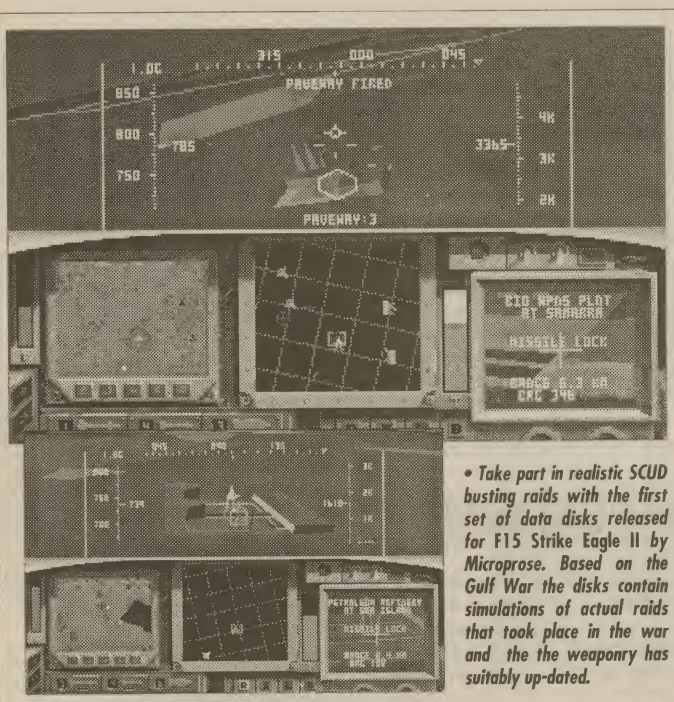
***Paket V.4.0* is a versatile packet radio communication program. Several popular TNCs are supported with configuration data files including PK232, Tiny-2 and MFJ12XX.**

The program provides the usual TNC functions and, in addition, has a flashback feature, logging to a disk or printer, ASCII & YAPP file transfers, full on-line help, multiple windows for multiple connections, drop to DOS or your favourite editor, script processing, etc.

Here's a novelty: Geoclock shows a pictorial representation of either the whole world or just the USA. The daytime part is displayed light with the nighttime portion in darkness.

One notable feature is the Grey Line which is highlighted. The clock over the earth is highlighted and your city can be made the reference point with sunrise and sunset times shown. Supports up to 800x600 SVGA where extra maps are included.

Contact: PD & Shareware Library, Winscombe House, Beacon Road., Crowborough, E Sussex, TN6 1UL.



• *Take part in realistic SCUD busting raids with the first set of data disks released for F15 Strike Eagle II by Microprose. Based on the Gulf War the disks contain simulations of actual raids that took place in the war and the the weaponry has suitably up-dated.*

and Kuwait, the northern part of Saudi Arabia, and sections of Jordan, Iran, and Syria. The targets include both fixed and mobile scuds, early-warning radar sites, the Presidential Palace, pumping manifold at Sea Island.

"Eight specific types of historical missions have been added. This allows you to select 'Scud Busting', 'Baby Milk Factory', and 'Republican Guards', among others. To this end we have included all the appropriate weaponry. This includes laser-guided GBU-12 Paveways."

Not bad, eh? One last thing, the VGA version of includes gradient sky – in other words, it gets darker the higher you go. Plush, very plush.

☎ Tel: 0666 504326.

Paul Rigby

MACINTOSH

- **Will new Macs spell the end for the SE/30?**
- **Is Windows drawing developers away from the Mac?**
- **Stylish new chess program is a beast to beat**

CHESS TIME

There are a number of chess programs on the market for the Macintosh, but *Chess Champion*, a new program from The Oxford Softworks, certainly rates as one of the best looking.

The program was originally available on the Amiga, ST and PC, but the Macintosh port bears none of the hallmarks of a hastily-done conversion. Although the manual doesn't refer to the Mac at all, a loose insert tells you all you need to know to run the program.

For those that know about these things, the program uses a type-B search method to determine its moves, which means (according to the manual) that it uses, "brains instead of brute force". The manual says that running on a standard ST, the program has a rating of well over 2,000 on the ELO scale, which places it in the *Candidate Master* or *Strong Club Player* class.

I'm certainly not a Grand Master, but the program certainly beat me with no trouble – even on its weaker levels. I imagine that it would be good enough to keep most people occupied for a good length of time.

One of the more novel features of the program is that it can be used, via a modem, to connect to another player running the same program. Chess by phone – hmmmm.

• **Chess Champion:** *far too hard for me – but then, so's draughts.*

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Chess Champion from Oxford Softworks costs £34.95.
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NEW MACS

According to American magazine *MacWeek*, rumours are strengthening that Apple will release a version of the Mac Classic powered by a 68030 chip this autumn.

Apparently, developers are being shown prototype versions of the machine, which is likely to sell for around $2,000 for the 2/40 version in the States – which is likely to translate to a little over £1,000 in this country.

Of course, releasing a new, 68030-based compact Mac means that the SE/30's days are numbered. It's now something of an anomaly in Apple's product line, and market research shows that seven Classics are being bought for every one SE/30.

One further reason for the probable demise of the SE/30 is that while all the other Macs – including the Classic – are produced on completely mechanised production lines, the SE/30 has to be hand assembled, leading to increased production costs.

Sources close to Apple have also revealed details of the new 68040-based Macs due for an October launch.

There will be two machines: a desktop model which will look very similar to current Macs, and an all-new look tower model, which will be far more similar in appearance to high-end PCs. It should offer roughly three times the performance of a 68030, and will come with fast NuBus cards and two SCSI controllers – one for external SCSI devices and one for devices actually installed inside the casing.

Sources reckon that the machine will be about twice as fast as a Mac IIfx. The price? To you, squire, for a 4/160 configuration, about $8,900.

MAC NEWS

Now that Windows 3 is established without a doubt as the GUI of choice for PC users, many software developers who originally only produced Macintosh applications are now actively developing for the PC environment.

Not that Mac users should be worried; while there are, it is true, some developers who have stopped work on the Macintosh, the majority who work on Windows are doing so in parallel with their work on the Mac.

Proof of this comes from companies such as Quark, which is at work developing a Windows version of the highly sophisticated page layout program *XPress*. The Windows version is due for release in the fourth quarter of this year (which realistically means some time in the first four months of 1992).

Another company developing for Windows is MacroMind, creator of the famous MacroMind *Director*, a multimedia authoring tool which allows Mac users to create incredibly slick presentations and animated shows.

Now, MacroMind has announced that it is soon to release MacroMind *Windows Player*. This product, with a suggested retail price of about $995, will allow presentations created on the Mac to be played back on a PC running Microsoft Windows 3.0 – albeit with slight limitations on sound quality.

There appears, however, to be no move towards creating a full version of *Director* for PCs – the Macintosh remains the foremost multimedia platform. (Incidentally, it's interesting to note that Apple seems to be trying to get away from the concept of multimedia somewhat. Perhaps it's because the company has realised what everyone else has been saying for the past nine months: it's all very nice, but what is it actually *for*?)

Ian Wrigley

POSTCARD FROM AMERICA

Bill Gates finally made it to a Berkeley Macintosh Users Group meeting last month! He had previously backed out a half dozen times in the past five years.

Gates gave an interesting talk on technology, demonstrated *Excel 3.0*, and generously answered questions for an hour. He also had to endure some infamous top ten lists composed in his honour. The list of why he had waited to come to BMUG included:

- **With Steve Jobs and Philippe Kahn already in California, the weight of another ego might cause state to slip into Pacific Ocean.**
- **He feared that Berkeley's bad reputation for psychedelic drug use would tempt key Microsoft programmers to relocate here.**
- **He hoped to announce company's new line of condoms, but test marketing showed neither men nor women like the name Microsoft.**

My own contribution was *The Top 10 Reasons Bill Gates is Interested in Biotechnology*. The week before his visit, a local newspaper had an article on his purchase of a biotech factory.

- **10 He mistakenly thinks it's biography creating software.**
- **9 It's an industry with even longer lead times between product announcement and shipping dates.**
- **8 He's working to make a micro-soft toilet tissue a reality.**
- **7 He likes to toss Petrie dish frisbees in clean-room laboratories.**
- **6 It might create some life in the CD-ROM industry.**
- **5 It's a solid opportunity for strategic partnership with God.**
- **4 He wants to get closer to all those foxy laboratory technicians.**
- **3 "It's a living."**
- **2 It's the only hope of removing an 'OS/2 Forever' tattoo.**
- **1 He believes dealing with food and drug administration will be a piece of cake after BMUG meeting.**

David Morgenstern

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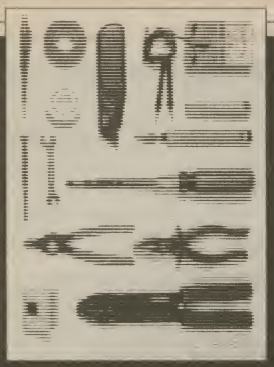


CIRCUIT CITY

Want to turn your ST into a tower workstation? Keith Pomfret climbs the Lighthouse Tower to see what it takes to build the kit

PRODUCT Lighthouse Tower
MACHINE Atari ST
FROM The Atari Workshop
CONTACT 0753 832212

There's a limit to what will fit inside an STFM's case and it seems to have been reached with the standard machine. There's a world of expansion capabilities open to an ST user, but if you're not careful you could end up with a desk covered in odd boxes and cables like spaghetti.

The Lighthouse Tower system helps you to avoid all of this by removing the insides of your ST and decanting them into a box the same shape and size as those powerful PC workstations so beholden of all the glossy corporates. There is room inside the Lighthouse Tower for all of the components of an ST, up to four drives (hard or floppy) a couple of fans and loads of other bits including a more powerful power supply.

The bay for an alternative power supply is useful if you're bumping up the amount of drives and peripherals as the Atari power supply isn't up to much more than a couple of floppies.

It's impossible to build the Lighthouse Tower within a week or so of the A1500 Amiga kit without drawing comparisons. Both seek to take a basic machine, re-box it in a more professional looking case and offer further expansion. A quick glance at the Lighthouse Tower's instruction manual confirmed that this would be a harder task. As well as being a lot bigger than its Amiga counterpart (and hence having more room in it for expansion), the Lighthouse wasn't a simple matter of throwing the components into another box and switching on. To start with, dissassembling an ST is a tricky and involved process requiring a logical approach and manual dexterity.

The two page section entitled 'Stripping your Atari ST' takes you through the procedure of opening up the ST and removing the motherboard, power supply, disk drive and keyboard. This is necessary as the ST can be an awkward beast to disembowel. This applies especially to the metal shield that needs an ingenious touch with a pair of pliers to tease it away.

WARRANTY BEWARE

Before you turn your ST on its back and move in with a screwdriver, remember that any job that involves the dissassembly of any computer will invalidate any warranty that remains and could mean that your dealer, manufacturer or service agent may refuse to do work on the modified machine.

With a simple internal modification, you may be able to get away with rolling your eyes and pleading ignorance, but when Mr Atari sees your ST living in a vertical tower block instead of a horizontal grey wedge, he's not going to be fooled for a minute.

Once the STs innards are on the bench, the keyboard can be placed to one side as it's not needed yet. The two halves of the ST's case and the top and bottom of the metal shield won't be needed so they can be put away safely. For whatever reason, you may need to rebuild your ST at some point so it's a good idea not to bin the disgarded parts.

PREPARATION

The preparation of the Tower's chassis involves inserting 12 caged nuts into prepared holes, installing an IEC socket kit if you are using one and fixing various switches, a reset button and a security key. This is a simple job and only takes a few minutes. Once it is done, work can begin on the main unit.

The motherboard is the heart of any computer and the next task is to mate the motherboard with the multi-board. The multi-board is a multi-function PCB that allows the connection of various internal peripherals. One unfortunate thing with the installation of the multi-board is the connection of fly-leads to micro-chips on the motherboard. These are connected using a simple spring clip. While this is simple and avoids the necessity for delicate soldering, it doesn't look like a connection that will stand much use.

The motherboard is connected to the chassis using small posts that correspond with the original screw-holes from the plastic case. The cardboard mask is retained offering some degree of insulation between the metal chassis and the bare PCB motherboard.

POWER POINT

With the multi-board in place and the various connections made, the power supply should be installed. The location of the power supply will depend on whether you use the original PSU from your ST or whether you plan something a little meatier to drive more accessories and peripherals. The power supply in your ST can probably provide life to the bare ST and one extra disk drive, but not much more. If you're building a monster, get a bigger PSU.

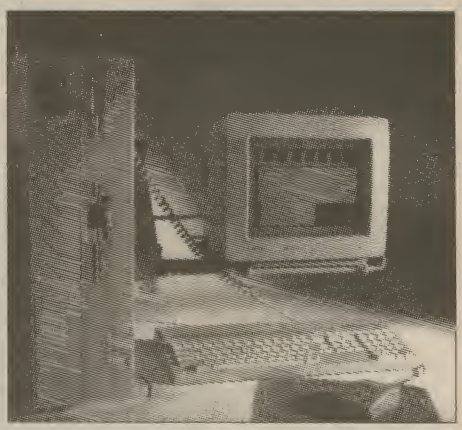
The tower can take up to four drives and these are fitted according to the instructions. The Tower is designed to take most sizes of disk drives and blanking plates have cut-outs designed for the three most common size of drive. After inserting the drives, the two halves of the chassis are hinged together and the necessary cabling completed.

This includes using the extra connectors on the multi-board to add extra drives. An important job at this point is to make sure that all of your disk drives have the links set to Drive 0. The Multi-board won't recognise them otherwise as the drive select logic is on the board rather than the drive.

TOWER FACTS

The Lighthouse Tower system is available in three different variations for STM, STFM/STE and Mega ST conversions.Tower 1 (Mega) costs £159.50, Tower 2 (STFM/STE) £199.50 and Tower 3 (STM) £234.50. Disk drive adaptors, fans and monitor stands are available.

Page one of the build up manual suggests that you read it completely before taking on the build-up task. It sets a target time of 3-4 hours for an experienced technician. If you have any doubts about your abilities, Atari workshop which distributes the Lighthouse Tower will offer advice and a build up service if required.



• Tower power. The reboxed rebadged ST in its guise as a Lighthouse Tower. The monitor stand is a bit painful on the wallet, but the general prognosis is good.

KEY FACTS

The final build up is the keyboard. The unit from the Atari ST is placed in a tray with a cover and in this way looks like the remote keyboard of a PC or Mega ST. The keyboard is the simplest job of the whole build up, needing only placement, insertion and fixing of a rubber sleeve and the connection of the keyboard interface. A couple of rubber feet for good measure and the keyboard unit's complete.

ONE TWO THREE TESTING...

At this point, the manual advises testing the bare chassis. Ouch. That could seriously kill you. We advise building it into the case first – sure, a few minutes wasted, but it could save your life. ■

HOW THE SYSTEM SCORED

FOR
- ▲ Loads of expansion capabilities
- ▲ Tidy: the system unit sits on the floor under a desk
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AGAINST
- ▼ Not for the faint hearted. A tricky job
- ▼ Kicks your warranty into touch
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- ▼ Assumes that you understand the components and workings of your machine.

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Amiga Computing - October 1990

THE BIG ALTERNATIVE SCROLLER

It's new, it comes in a black folder. Price: £49.99

It's simple to use, and it's here! The Big Alternative Scroller is now on sale. This is a self-contained titling programme on one disk. The software enables you to type in credits, titles, display information etc, and scroll them either vertically or horizontally on your monitor screen and likewise onto video tape.

This programme is so simple to use that you hardly get a manual, because you don't need one. Everything you could ever need is on the screen for you.

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TECH TIPS

Does your Macintosh need a cheap printer? Can't your multimeter talk? Need to write games without pain? Confused by all those names? Write to Keith Pomfret's Tech Tips

A new leaf

A PC advertised in the local paper seemed a snip at £180 including a colour monitor and hard drive. We went to look at it and it worked perfectly. The seller offered to throw in all of the software that was on the hard disk (yes, £180 and it had a hard disk) and we parted with our cash and took it home. We set it up and ... nothing.

After a frustrating few minutes, we rang the seller who said that we must have damaged it in transit as it had worked perfectly when we'd tried it at his house. Back to work and I borrowed a DOS disk. With this in the A drive, the PC came to life and worked perfectly until we tried to access the hard disk. That gave an error message.

By trial and error, my son managed to get the hard disk up and running. He switched the machine on and off several times and eventually it 'caught'. Over a period of a week, we found that by doing this, it was possible about one time in fifteen to persuade the machine to come to life.

We called in an 'expert' and he diagnosed an interleaf problem. Our drive was interleaved 1:1 instead of a more appropriate 1:6. He backed up the software and did something that took about 20 minutes and put the software back on the hard disk.

Later on when we were checking the boxes for the manuals, we found a receipt for the machine. It had been bought by the previous owner only a week before he resold it to us and for £100 more. Our problem is solved, but we are still puzzled about interleafing. What is it?

Jim Player, Sidcup

THE DISK is divided into sectors and tracks. The tracks are concentric circles with data on them and the sectors are discrete 'slices' of the disk.The disk interleave is how many 'slices' the read/write head skips between read and write operations. If it has an interleave of 1:4, it reads a slice then skips 4. This gives it time to digest the information that it has read or prepare more information to write.

An older slower computer needs a larger interleave (1:4,1:5,1:6) to allow it thinking time. It's possible to format a hard drive of a slow machine to 1:1 but as you found, that leaves you with a very unreliable hard drive.

Sound meter

As a sound engineer I regularly have to work in cramped and dark conditions. My problem is that often I need to take line readings on stages in between stacks of equipment and backdrops and it's sometimes difficult/nay impossible to read my multimeter. I know that it's possible to get a meter with a lit dial or digits, but this isn't possible either as often, I work in conditions where I cannot see the dial. Is it possible to interface a multimeter with a portable computer and use voice digitising software to make it talk to me?

Will Cuorlie, Kent

WHAT A SILLY IDEA. The very thought of you crawling around stage sets, speaker bins and cables toting a multimeter, laptop and interfaces doesn't bear thinking about. A better solution would be a multimeter that talks. It sounds a bit far fetched, but some serious scouring of electronics catalogues revealed that Micronta makes a talking tester called Voice Meter Digital Multitester.

To get your mitts on one of these chirpy chaps, give stockist Tandy a ring on 021-556 6101 to find out where your nearest branch is.

• A multimeter that can talk? The Voice meter from Micronta will tell you how close you are to frying...

Atari upgrade

Now that Atari has turned its attention over to the STE I am wondering whether it's possible to turn a standard STFM into an STE. I would be grateful if you could help me with the above enquiry.

SP Vines, Mexborough

THE ARCHITECTURE of the STFM doesn't lend itself to an STE style upgrade and although there are many ST upgrades available, an FM to E kit doesn't seem to be among them. As well as the hardware considerations, the STE has an updated and upgraded firmware too. Still, with hardware modes available that can turn your ST into a Macintosh or a PCAT, you should have some consolation in the alternatives available.

Big Blues

I recently purchased some computer hardware at a sale and have since been unable to discover anything about the system.

The keyboard and green screen monitor is a GENERAL-KDE-820 and the disk drive is a GAMA 68 unit with an IBM drive model number TM 100 2A made by the Tandon corporation. The unit is about 18x16x8 inches and contains the drive and a printed circuit with various memory cards, etc which have F+D associates MD1-1 written on them. The only other information I have is written on the IBM drive. PROCESS TRAVELLER MT2812 FT 2804 DA2801 MI28B (IBM) PH II E 28C

I was hoping from this information you might be able to help me discover how to work this kind of computer.

Roy Hutchinson, Chelmsford

IT'S NOT A MACHINE that we've heard of and without further information on the operating system and configuration, it would only be a shot in the dark or an educated guess. No doubt though, some reader will have one of these machines lurking in attic or workshop and will reply with manuals and info.

Qume manual!

I recently bought a Qume daisywheel printer model number S9/55 and unfortunately the seller did not supply the manual. This seemed fair as I only paid £10 for it. I was wondering if you could help me after having noticed your slogan 'Bought a second-hand machine without a manual?'

Alex Kinch, West Wickham

YOU COULD TRY ringing Qume on 0734 584646 for the manual. They should be able to supply you with the necessary documentation to support their daisywheel. Alternatively, you could put your feet up and wait for one of our intrepid followers to blow the dust off an unwanted tome and post it into *Express* for your assistance.

Leads for leads

I read your section in *Express* every week with great interest. I see that you do sometimes suggest to readers where they might obtain leads and cables for various computers and uses such as monitors, disk drives, etc. I manufacture leads and cables either to customer specification or standard pin-outs. I also specialise in leads for the Amiga with its 23 way D type socket.

I offer a personal service at reasonable rates. I would be grateful; if you would bear me in mind when recommending companies with this kind of service to your readers.

Barbara Yarwood, Polegate, Sussex. (0323 487030)

THE COMPANIES that we recommend are ones with whom we have had regular contact over a period of time and who have been recommended by several of our readers. We keep a watching brief on quality and service and try to ensure that our readers only get the best. I'm sure that you fit the above criteria and in

the near future, we will be contacting you. In the meantime though, we've included your phone number for those who wish to check you out.

TIP! Amstrad ST

I read Ross Douglas's letter regarding problems using an Amstrad colour monitor with the ST. I had the same problem with the screen scrolling slowly, but it only occured on my STE and not my STFM. I cured the problem by bridging pins 2 and 3 together on the ST's monitor plug.

Assuming that all Amstrad leads are the same colours (I cut the plug off mine) the wiring is:
Brown to number 2 bridged to number 3
Red to number 7
Green to number 6
Blue to number 10
Black to number 13

I found that I didn't need to use the white wire at all! The above was worked out by trial and error, but has been working perfectly for the last eight months. I hope that this makes sense and is of use to anyone with the same problem.

Martin Kirlow, Normanton, W Yorks

HUMFF. Trial and error may work, but it is not the way to deal with computers and electrical equipment.You can kill yourself if you mess about with electricity and even if you don't you stand a good chance of hurting or burning yourself or even damaging your equipment.

However, risky as it may be, you seem to have provided a simple and elegant solution to a problem. We weren't able to replicate it on the office ST, but a peek inside the two CTM 644 monitors confirmed that they conform to the wiring that you describe.

If anyone wants to take on the task of this upgrade, they should check the pin configuration of the Amstrad video connector before discarding it.

This and the pin-out diagrams in the Amstrad and Atari manuals should be enough to assure you of a trouble free connection. If in doubt, read the manual. On most occasions, the information that you need is in there.

HELP Epson by name

What is the difference between an Epson printer and an Epson compatible printer? I've been scouring the ads for a cheap way to output my witty prose (preferably more readable than Parker pen and vellum). There are a lot of Epson compatibles but few Epsons for sale. Does it matter?

Rob Graham, Wigton

• It doesn't need to be an Epson to be Epson compatible but if it is, more's the better

EPSON is a company that made it's name and fame by manufacturing printers. The series of protocols that takes the data from the computer to the printed page is known as the Epson standard. Many companies making printers chose to follow a tried and tested route and used the Epson standard to assure software and hardware compatibility. As more manufacturers used the Epson standard, it gathered momentum until it became the de-facto standard for dot matrix printers.

An Epson printer is one manufactured by Epson, a compatible is one that uses the same set of commands as an Epson. Either will do the job adequately, so make your choice based on your finances and product reviews.

HELP No one knows

I have written to music magazines, pop papers and even the *TV Times* for the answer to a very simple question and have got no response. My dad says you'll know because uncle Tech Tips knows everything. I bet you don't and I've put three weeks washing up against double pocket money in a bet. Are you ready? Which group recorded Senior Service Satisfies?

Kay Willman, Lincoln

If I were you I'd reach for the rubber gloves. That rather bawdy seafaring ballad was recorded by electric folkies Steeleye Span and appears on the album Sails of Silver, sung by the divine voice of Maddy Prior

● Tech Tips isn't here to answer questions about music, but who could resist the opportunity to help someone get their washing up done for three whole weeks?

HELP Lazybones

Me want to be games programmer without nasty hard work, machine code, C, Pascal, etc. Not a diligent bone in me body, but wants three-dee fly through space sort out the bad guys head games from me own cranium. No time for school, no courses, just answers which you can give. How to make mega games with Amiga, but not cracking bad guy. Lazy, but honest

Stu Farrer, Salford

THERE'S NO SIMPLE WAY to become a mega games programmer overnight. The languages that can be learned quickly are the high level ones like LOGO and BASIC which are about as much use to a games programmer as a fax machine is to a dolphin.To effectively program games that are worth playing you'll need to learn machine code.

The only alternatives on the Amiga are to use something like AMOS which is a user friendly way of bolting together routines and bits of high level programming to produce colourful playable results.

If you like dabbling in 3D, the lovely chaps down at Incentive and Domark have release a user friendly 3D construction kit that allows you to utilise Freescape to build your own Game/Reality/Environment/Nightmare.

HELP Laser quality

I need the quality of a laser printers output, but most of the software that I use doesn't have Laserjet II or PostScript drivers. Is there a way to make a laser read Epson codes? It is a quandry, but I need laser output for DTP and Epson for my other applications.

Mrs Hope, Reading, Berks

THE SIMPLEST answer is to buy a laser printer that is capable of Epson emulation as well as Laserjet II. An obvious choice is an Epson laser printer which is so equipped. Check with your dealer about compatibility and as importantly, how easy it is to switch between emulations.

There's no point in picking a printer that will do both if it's a job for a nuclear physicist to get from one to another. ■

HELP Core problem

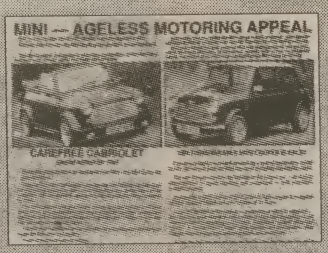
We inherited an old Apple Mac Plus with a small 20Mb hard drive when a small company was absorbed. As a PC using firm, the initial decision was to trash the Mac and replace it with a PC. We read in your August publication that the Mac is great for desktop publishing and wonder if it could be used for the company news bulletin. We can't budget for more software and there is only a word processor and database on the Mac at the moment, but I can't help thinking that this can only be better than our present bulletin.

When the word processor is opened, there are a dozen or so founts available. At present, the bulletin is typed on a typewriter and shrunk to half size on a photocopier before being stuck to a mastersheet and photocopied.

I remeber reading in *NCE* about a cheap Mac printer that's better than a laser in resolution, but under £400. If that is the case and the printer will also double as a personal correspondence printer, we could be in business.

R W Trafford, Birmingham

THE PRINTER that you're interested in is the Apple Stylewriter which costs around £280 plus VAT. It has a resolution of 360x360 dpi (a laser only manages 300x300) it works using bubblejet technology which isn't quite as sharp as a laser, but the higher resolution means that a Stylewriter printing at 360x360 dpi is comparable to a laser. If you have a word processor on the Mac that allows you to set column widths, you can set columns in a font and size of your choice, print them on the Stylewriter and paste them up on to a full sized master page in much the same way that you do with the typewritten sheets now.



• A Stylewriter and old fashioned cut and paste helped a Macintosh turn out this professional looking output

You wouldn't be on your own if you took that route. A publishing house specialising in 'garage newspapers' found themselves needing to produce a newspaper in a hurry when technical problems befell them. Using only a Mac and a Stylewriter they produced the columns of printed text to paste on to a prepared page, added pictures, etc, and produced an acceptable tabloid newspaper.

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♦ ST

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♦ AMIGA

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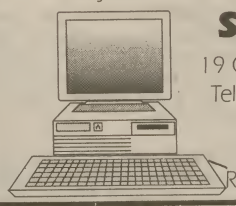

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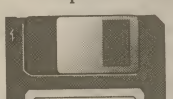

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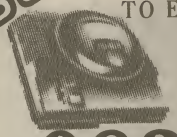

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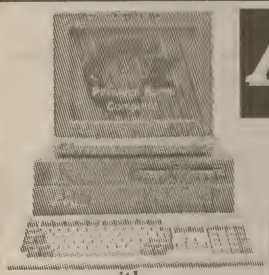

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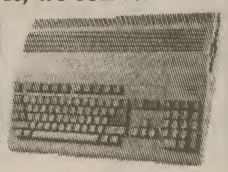

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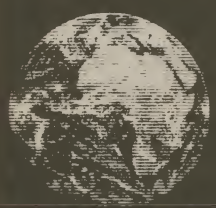
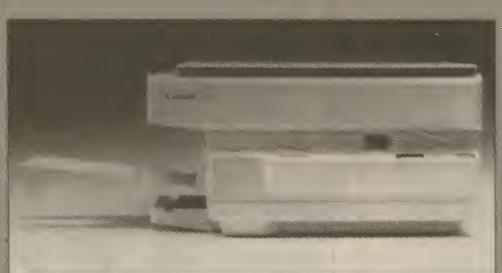


Yet more facts wired in from planet Earth. This week our man on the move, Steve Gold, tells of cheap PC upgrades, cost-saving printers, power-saving portables, modem-less faxes and $10million legal action over an enormous telephone bill

NEW LASER PRINTER MEANS ANY OLD PAPER WILL DO

A new generation of laser printers that will print on virtually any grade of paper is on the horizon, meaning potentially huge savings on the cost of printer paper.



Feeding cardboard and paper towels through a laser printer could soon be a cost-saving boon rather than a recipe for disaster.

First to the market with a machine that, it is claimed, can even print on paper towels and card is Tektronix, which unveiled its Phaserjet PXI laser printer at the PX Expo computer show in New York this week.

The colour PXI weighs in at $9,995, but expect that price to fall when other manufacturers climb on the bandwagon. The PXI uses a system called 'phase-changing' – similar to a solid ink system by which melted ink from a solid rod is sprayed on to the paper surface. Unlike inkjet systems, the ink is fed through a roller wheel in a similar fashion to that of a photocopier, saving on drying time and speeding up printing .

Several laser printer manufacturers are said to be working on monochrome versions and a $2,000 machine using the technology is expected by the end of the year. It could be that the days of the standard laser printer are numbered. Contact: Tektronix – Tel: 0101-503 682-7377 Fax: 0101-593-682-3408.

386SX UPGRADE FOR YOUR 286-BASED PC

Owners of 80286-based PCs can now upgrade to a fully-fledged 386SX PC for less than $700.

Kingston Technology, of Fountain Valley in California, has come up with a slot-in board which, it is claimed, can boost performance by up to 250 per cent. This could save more than half the cost of replacing your entire PC with a new one and, at the same time, allow you to run 386 software.

SX/Now, as the card is called, plugs into the 286 microprocessor socket on the PC's system board. On the technical front, the board includes a 16K cache system, as well as a choice of 16 or 20MHz 386SX chipsets to produce the same processing power results as a standard 386SX system. It even includes a 386SX maths co-processor socket.

Kingston's products are distributed by a number of outlets in the UK, but the company will supply direct if you ask them nicely.

Contact: Kingston Technology Corporation Tel: 0101-714-435-2600 Fax: 0101-714-435-2699

FAX FROM ANYWHERE – WITHOUT A FAX MODEM

It had to happen – an easy method of sending faxes using a modem, but without the need to use a true fax modem. The secret of Ibis Software's Go Fax system, which costs just $69.95, is that it uses your existing standard modem to transmit the ASCII data or a PC fax image to an AT&T bureau, which then transmits the fax image to the receiving fax station as normal.

In the US, the fax bureau service is accessible via a toll-free number. In the UK, the service is only available via a London dial-up port (Sprintnet) although it does offer a method of sending faxes on the cheap to US fax numbers.

The technology is simple, with software that is easy to use (Ibis claims a fax can be sent using its pop-up software with less than 10 keystrokes).

For the UK, news is that a major E-mail service provider is currently working on a similar system to interface with its own PC-to-fax on-line service. Watch this space for further details when they become available.

Contact: Ibis Software Tel: 0101-415-546-1917 Fax: 0101-415-543-0346.

PROGRAMMING IN FRENCH AND GERMAN MADE EASY

French and German-speaking programmers will no longer have to refer to English manuals thanks to a new lingua-friendly program editor.

Brief, by Mema Computer of Frankfurt, allows programmers to access an editor that provides context-sensitive help in either French or German. Dos and OS/2 versions are available and the package costs a steep $399.

According to Mema, *Brief* can be customised – even down to rejigging the keyboard layout in software – to accommodate the French Azerty layout, and includes word processing capabilities as a standard feature.

Brief runs on most PCs, with a minimum configuration of 256K of RAM and two floppy drives.

Contact: Mema, Westerbachstrasse 289, 6230 Frankfurt M30, West Germany. Tel: 01049-6934-7226 Fax: 01049-6934-3838.

'ELLO TOSH, GOT FOUR NEW TOSHIBAS?

Toshiba Japan will shortly announce no less than four new battery-powered gas-plasma-display notebook PCs.

Unusually, for gas-plasma models, the notebooks can run for up to three hours on a single charge, which is good going for the normally power-intensive, but high quality display.

This is Toshiba's first foray into the gas-plasma notebook field and the Japanese giant claims some impressive new technology has enabled it to keep the notebooks' display power requirements to a minimum.

The new machines will be unveiled in early July in Japan, starting at $2,900 for a basic system, ranging up to $3,600 for a hard drive-equipped machine. Expect them in the UK later this summer.

COMPANY LAWSUIT OVER HACKER NEGLIGENCE

Mitsubishi has taken out a $10 million law suit against American telecommunication company AT&T after company staff ran up a $430,000 phone bill.

The Japanese electronics giant alleges that AT&T failed to provide it with a secure telephone system and failed to warn of the potential for hackers to gain unauthorised access.

According to preliminary documents filed by the Japanese company's US office, AT&T supplied Mitsubishi with a System 85 PABX that allowed the company's staff to dial on one phone line, key in a six-digit password, and then dial out – at Mitsubishi's expense – to anywhere in the world. It is claimed that 30,000 calls were made to places as far away as Egypt and Pakistan, among many other countries.

Mitsubishi is asking the court to dismiss $430,000 in telephone bills it says are due to hacker calls and to award $10 million in punitive damages and another $270,000 to cover additional costs involved in preparing the case.

The case is a landmark in US legal history. If successful, the floodgates could be opened for similar actions around the world against telecommunication companies, such as British Telecom and Mercury in the UK. ■

PORTABLE PC SOLUTION IS SAT IN YOUR LAP

While laptop PCs are getting smaller and more powerful, it Is still rather tricky to use the machines on anything other than a flat desktop.

Perching several hundred pounds of laptop computer precariously on your knee while on the bus or in the passenger seat of the car is not the safest or most comfortable way to type out data.

This is where Eastboard's natty solution, Laplift comes into the picture. The Philadelphia-based company has brought out a range of four inexpensive ($19.95) plastic cradles that will enable you to sit your laptop actually on your lap. Even desktop use can benefit as the Laplift can tilt your machine to, what the company says, is a more natural angle.

Like all the best inventions, the cradle is very simple idea and one that – as far as we know – no-one else has come up with.

At $19.95, Laplift provides a good, economical solution to an irritating problem, so hats off to Eastboard.

Contact: Eastboard Consoles
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Fax: 0101-215-533-7532.

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MAC GAMES G08
1 DISK

AMAZING 23K Computer generated mazes to solve. The puzzles go from easy to nasty.
AMPS 3.0 This game is just like the old main frame game called Darleks.
ARTILLERY Vr 1.3 This is a siege game with good sound and graphics.
ASHES An unusual version of missile command.
ASTEROIDS A keyboard based version of the old arcade classic.
BANZAI Destroy the approaching enemy before they get you.
BRICKLES 8.0 A harder version of the game breakout.
CAIRO SHOOTOUT Computer version of fairground duck shoot - Egyptian style.
CANNON FODDER Another siege game. lots of options and good graphics.
CENTIPEDE This is just like the arcade game.
BASH BIG BLUE Ever had the urge to smash an IBM - Now's your chance!

MAC PROGRAM P02
1 DISK

SESAME C This is a powerful development systewm that includes a C compiler and it's own 68000 assembler. Compiles quickly and automatically saves assembly code to disk. this compiler has been tested and works well with all source code provided.
NOVASOFT EDITOR. This C editor comes with it's own source code.
ALSO INCLUDED Obi. Sort, Simple Tools, and a DA which will display the first 128 characters of any selected font in Decimal, Octal and hex.

MAC DA's DA01
1 DISK

AIRPORTS Calculate distances between airports.
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PLANETS Shows the planets visible on todays date.
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MAC GRAPHICS GR09
1 DISK

3D EDIT This package is just short of outstanding. It is very comprehensive and is very easy to use. It has two sample drawings with it and you are able to produce quite complex drawings.
FREE 3D This is another 3D package that is easier to use than 3D EDIT. It also has the ability to shade objects as well as produce quite complex shapes. Good for ceramic artists
3D MOLES This program is able to show certain molecules, using animation. It rotates them in 3D.
DESKTOPS Create mathematical drawings.
SHOW Slide show program to display MacPaint files

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1 DISK

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GAM-022 EGA GAMES 1
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GAM-033 ADVENTUREWARE
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Enjoy golf and play 18 holes. EGA req'd
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GAM-079 DULES TOWER
Air Traffic controller simulation. Very good, CGA Req'd
GAM-085 SCRABBLE
Superb version of the old time favourite.
EGA Req'd
GAM-088 GAMES FOR JOYSTICKS
Games designed with joysticks in mind, keyboard control also available on most, CGA Req'd
GAM-107 NYET
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GAM-108 PAPER PLANES
20 different outlines for paper aircraft. BASIC req'd and an IBM or EPSON printer is also requiired.
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LISKEARD AMIGA USERS GROUP – For tips, help and information exchange. Contact Phil Golding, 19 Pound Street, Liskeard, Cornwall PL14 3JR. (0577) 46217.

ORIC ENTHUSIASTS – The contact point for all Oric support. 8 Staley Hall Road, Stalybridge, Cheshire SK15 3DT. Tel: 061-303 7369.

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AMIGA PD – The library with no name. Non commercial PD. Send SAE for complete listings. David Hopkins, 23 Penmead Road, Delabole, Cornwall PL33 9AT. Send Blank disk for free demos.

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CMS PD LIBRARY – Sam Coupé PD software for only £1.50 a disk. Send an SAE and a blank disk (or 70p) for a disk catalogue to CMS PDL, Dept NCE, 70 Donald Drive, Chadwell Heath Romford, Essex, RM6 5DU.

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SPOTLIGHT ON FANTASIA

Set up just four months ago, Fantasia Shareware has expanded, according to its founder Robert Dowell, "at a frightening rate; like a dog out of control".

Part of the reason for its popularity is probably due to the fact that the library deals in an area which to a large extent is still untapped, PC shareware. It has also recently introduced Macintosh shareware, an even more neglected area.

Its range covers everything from utilities through comms to games. and prices range from £4 to £3.10 a disk depending on how many you buy. Prices are all inclusive, so there is no extra to pay for postage. Catalogue disks are free so you can phone 0761 221585 now to order your copy.

Robert will also personally answer any PC or Mac-related queries you have, even if you are not a customer. Fantasia is a very friendly service and Robert simply wants to make sure that as many people learn about it as possible. One of the best way of doing this is through word of mouth, so he is eager to keep his customers happy.

Robert also reckons that Fantasia's returns policy is unique. If a disk does not live up to your expectations, you can return it and, for a small fee swap, it for another one.

SPOTLIGHT ON YOUR GROUPS AND FANZINE

We receive a lot of information about PD libraries for this spot, but very little about groups and fanzines. So here is a request for all you editors and group organisers to bet your pens out or printers whirring and get writing in.

Of course, what we're really after are groups and fanzines with a bit of a difference. So, if you're running a Dragon user group or put together a newsletter for all Lynx loving footballers with pulled ligaments, tell us all about it.

So don't miss this chance to blow your own trumpet. Send all your fanzines. disk magazines and user group information to:

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CONTINUED NEXT WEEK

SHOPPING EXPRESS BUYERS' GUIDE

While *Shopping Express* is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

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THE PD COLUMN

Frank O'Connor, with his finger on the pulse, takes a wee peek at all that's new in the mysterious undersea world of Glasgow ... err sorry Public Domain

Amiga owners with an interest in animation could do worse than to take a look at a disc from New Wave PD. The disc, uncannily entitled "Animations" contains two very short and very sweet Sculpt 3D animations. Both feature the same character, a sort of Terry Gilliam (Monty Python guy) figure, all fat and plasticky, performing a couple of everyday tasks.

In the first section, called Clark Kent, our podgy hero is seen walking along in a very odd fashion. The ray-tracing used in this part is quite breathtaking, with even the shadows of his lapels changing as he walks. In the second part of the animation, the little fat guy drives around a chequered landscape in a similarly fat car.

Again, the light sourcing and ray-tracing techniques are shown off to full effect, watching the "sunlight" reflecting on the car is an almost hypnotic experience. The demo is of no practical significance, but does show off some real talent and contains a few pointers and ideas for budding animators.

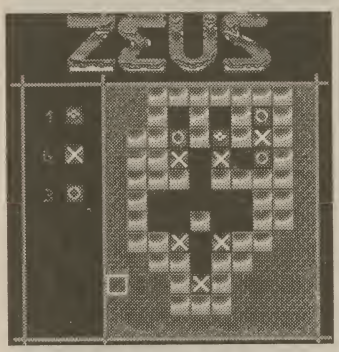
SECTIONAL FRUSTRATION AND MENTAL BLOCKS

Arcade addicts might remember a wonderful Taito coin-op called ***Plotting***. This machine was notable by its near absence from British arcades, only cropping up now and then in the darkest corners of motorway cafes and dead seaside resorts. If you were unlucky enough to miss it first time around, then you probably heard of the reasonably successful Ocean conversion for home micros several months back.

Seventeen Bit software was kind enough to send along a copy of a PD game which is spookily similar to the coin-op. The title screen hails it as being the first Game Boy/Amiga conversion, but for owners of a powerful 16-bit micro, this seems a somewhat dubious claim to fame.

The game itself is a puzzle type, influenced heavily by the post-***Tetris*** avalanche of "think-'em-ups". No bad thing either, as ***Plotting*** has a lot in its favour and enough originality to make it stand out from the crowd. This version of the game is tactfully named ***Zeus***, more to avoid legal problems than anything else methinks.

The object of the game is to line up identical symbols in a maze of bricks. It



• ***As you try to line up identical symbols in a maze of bricks, gravity and odd numbers are your enemy in Zeus.***

is actually a very simple concept, but very difficult to put down on paper. Here goes, anyway...

The symbols must be lined up in a way that identical ones touch each other's sides. When two or more touch, they vanish and you must do the same with all of the symbols on the screen. Sounds easy in theory, but they are affected by several factors.

Select a symbol by moving the cursor over it and then drag it to an identical symbol. Unfortunately gravity affects the pieces and they could fall into a pit, they cannot move up and often end up irretrievably lost.

The mechanics of the gravity in this game are reminiscent of ***Boulderdash***, although the two game styles couldn't be more different. For example, if you line up two pieces, they will vanish and any pieces above them will drop straight down, often causing chain reactions as pieces match accidentally.

There is a distinct element of strategy throughout the game, governed by only two factors – gravity and odd numbers. If the screen you start on contains an odd number of one symbol, then a way must be found of making them connect simultaneously. If you end up with

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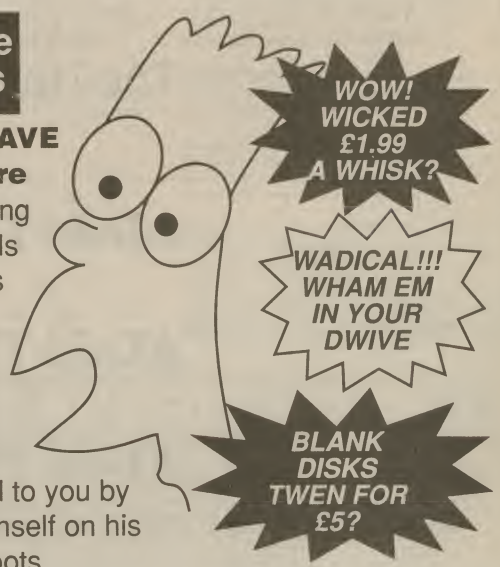

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only one symbol of a certain type, then the screen is impossible to complete and you have to start from scratch.

Care must also be taken when screens contain pits, or complex step formations, if a piece falls into a pit it may end up cut-off from its partner on the other side of the screen. Disaster indeed, but it is always possible to complete a screen. Careful planning and forward thinking are the order of the day.

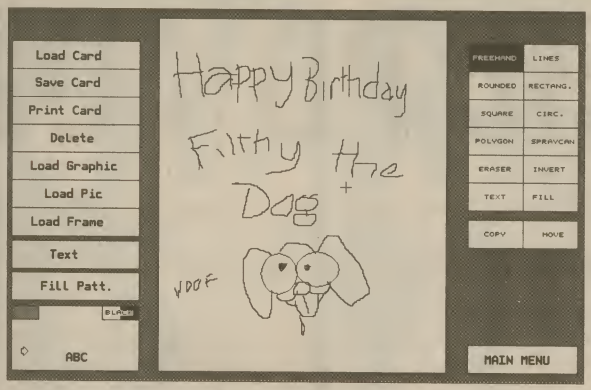
The graphics and music in ***Zeus*** are excellent, the presentation almost putting Ocean's full price original to shame. The game itself is all set to become an all time classic and at this price (disk plus postage and packing) it would be foolish to miss it. One minor niggle is the fiddly control method...mice and Plotting just don't get along.

PUT THAT PAPER TO BED

If you need to put something on paper and you have an ST, you should check out ***Printing Press*** on the ST. It's a shareware program from The South West Software Library and it's nigh on incredible.

The program will unfortunately only run on mono STs. Mono emulators wont do you the slightest bit of good, you'll need a mono monitor. The program is a design and print utility with a very wide range of features.

Printing Press allows you to design and edit text and artwork in a variety of forms. It sets up page sizes and layout styles, configuring several different page types. These include Greetings cards, letterheads, headed envelopes and A4 pages of any description.



• Add your own personal touch to greetings cards and letterheads – Printing Press allows you to let lose all your creative talents.

The whole thing is icon driven and dead simple in operation. It gives you a decent selection of text fonts to choose from, all of which are neat and well designed. Also included is a selection of decent art facilities, allowing you to add illustration and a little personal design flair to all your work.

Letterheads are very easy to produce, simply type in rows of different sized text. These are then automatically centred and placed on the screen and can be saved or printed to fit nicely on to an A4 sheet. This can add a professional touch to your own notepaper.

Greetings cards are easy to do, this time text and graphics can be incorporated in the design. It makes for a nice personal touch at birthdays or other special occasions. It also means you can avoid giving people those truly grotesque greetings cards you always end up buying at the last possible minute.

You can knock up a card, quite literally, in five minutes. The results are very good too, depending on your artistic ability of course, and the whole package is wonderfully friendly.

In theory, it should be possible to produce any kind of printed document with this package, from a business card to a magazine. It's flexible enough to play with and the only real limit is your imagination.

This package is something of a revelation, especially as it's shareware and it's indispensable to the amateur printing tycoon. On a lighter note, South West also sent along a brilliant Kylie demo (Uh, oh). Now stop it, everyone loves Kylie, she's sweet and wholesome and just like the girl next door.

This demo shows some tasteful digitised piccies of everyone's favourite Aussie, while playing a wonderfully sampled rendition of her wholesome hit single *The Locomotion*. No sex or drugs or sinful rock'n'roll, just good wholesome family entertainment. ■

ADDRESSES, YOU KNO YOU WANT 'EM

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SOFTWARE TOOLS '91

Whatever you're doing, there's almost always an easier way to do it. The Software Tools '91 show gives you the chance to find out how to make your life easier. Mary Brancombe went along...

This year's Software Tools show was a great improvement on last year's offering and there was a good turn out from a great many companies showing their wares. A significant number of these were CASE (Computer Aided Software Engineering) development tools and Fourth Generation Languages (4GL) – high level languages that generate code for you from your description of a program. Version 4 of SSADM – the Structured Software Analysis Development Methodology – used as the standard in defence contracts – was only finalised last year and the sheer number of SSADM-compliant CASE and 4GL tools presented this year suggests that it is swiftly being accepted as a standard among professional developers.

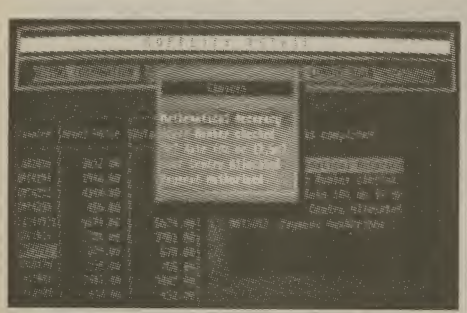
FIRST TOOL OF THE TRADE

The first tool you need is a programming language, of course, and there were some interesting developments. The last few years have seen the development of many object oriented languages, from C++ to Micro Focus' Cobol/2. This year there was an emphasis on specialised languages, many designed for developing applications for Microsoft Windows 3. The most recent example of this is Microsoft's own VisualBasic development environment, a powerful version of the QuickBasic compiler with visual design tools and a compiler that produces .EXE files for Windows 3.

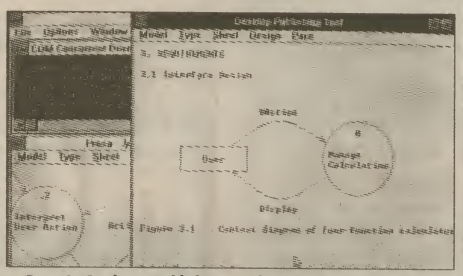
The tools are used to create the components of the user interface for an application. The application itself is written in VisualBasic. If you want to add multimedia or an interface that uses a pen rather than a mouse, you can use Microsoft C, the Windows SDK or the Visual Basic Control Development Kit

An interpreted version of QuickBasic is supplied with MS-DOS 5, which was launched at Olympia on the first day of the show with the help of Jonathan Ross.

Microsoft was also demonstrating the new features of MASM 6. Although it was rather upstaged by the flashy user interface developments of VisualBasic, MASM 6 is still a worthy upgrade – and ideal for the new generation of 386 and 486-based PCs.



• **Recital 7 *makes the contents of a dBASE database much more accessible by putting information into tables.***



• ***Prosa's Desktop Publishing Tool takes information from a CASE tool and puts it straight into a DTP program.***

Zortech occupied a small but busy booth, demonstrating the new version of its C++ compiler. Version 3 is faster than ever, and offers quite a challenge to Borland – which was sitting on the other side of the stand. Very little was happening at the Borland stand other than demonstrations of its successful Turbo Pascal for Windows compiler. The Paradox engine made a brief appearance, but there was more interest in its C++ compiler.

The new release includes an optional compiler that tailors dBASE code for the platform you are compiling on to

NAG, the Numerical Algorithms Group, announced the first Fortran 90 compiler for Sun workstations – this will be ported to other machines soon. The Fortran 90 standard isn't quite finalised so NAG still has some work to do. It expects to have the core of the language ready by the end of June and it intends to ship a product days after the standard is agreed upon. This means, of course, that it will be upgrading its famous number-crunching libraries to support the new language.

Niels Jensen co-founded Borland and worked on the *Sidekick* organiser – the first pop-up application for the PC – and Turbo Pascal itself. His new company is Jensen and Partners International and it has an unusual approach to providing a range of languages. The TopSpeed 3 environment lets you edit, compile and link several different languages from the same integrated environment, using the same tools. You can use any of its Modula-2, C, C++ or Pascal compilers and an Ada compiler for the system is under development.

GET ON WITH THE JOB

The other products at the show were there to help you get on better with your chosen language. Hoskyns demonstrated its latest version of the *Project Manager Workbench*, a project management tool that saves time on the development lifecycle of large-scale programs and draws Gantt charts that show you how well you're sticking to your schedule.

Recital announced the newest version of its dBASE development system: Recital 7 is now a 4GL environment for Unix and Vax/VMS systems. It used to be a tool for porting dBASE applications from MS-DOS to VAX and the new release takes this idea a step further by including an optional compiler that tailors dBASE code for the platform you are compiling on to. One nice feature was a split-screen browser that makes it easier to see the structure of the database.

RECREATE ON REFLECTION

Interactive Development Environments was showing a C development environment that can generate code or work backwards from your code and recreate the underlying design, which is useful for documentation. Many programmers do this at the end of a project and it is good to see a product that really reflects the way people program. Another useful advance for documentation came from Prosa, which has linked its CASE tool to word processors and DTP programs including *Ventura Publisher*, *Ami Pro*, Microsoft *Word* and *Word Perfect*. That makes it easy to take accurate information and present it professionally.

Perhaps the loudest message from the show was that programmers will use all the help they can get. It is also clear that Windows 3 is still big news in the programming community. While there were new products for every machine and environment, it was the Windows development tools that really stood out this year. ■

SOFT SELL ON HARDWARE

There were few hardware vendors at the show – one exception was Hewlett-Packard, showing off SoftBench, a development environment that lets you "bolt-on" extras as and when they become available. It is one of the few development environments available for OSF/Motif - possibly the first. The Program Builder was the most impressive aspect of this package, enabling C++, ADA, Pascal and Fortran developers to manage tasks with a built-in management system.

SATISFIED WITH THE SHOW?

Did you find what you needed at Software Tools 91? If not, tell us what you want - and why.
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The EVENT HORIZON

Who's doing what, with what, with whom, how, why and where...

THE PLACES TO BE . . .

Multimedia '91 **25-27 June**
At the Olympia, London. Info: 081-868 4466.

Making the Difference **28 June**
Carrying on until the end of the year, this exhibition at the Science Museum celebrates the 200th anniversary of Charles Babbage's birth. Babbage designed the first automated calculating machine, but failed to build it. A completed version of his last design, the Difference Engine No. 2, has now been built and will be the centrepiece of the exhibition.

The machine has been constructed with the aid of ICL, Hewlett-Packard, Rank Xerox, Siemens-Nixdorf and Unisys. It is hoped that by proving that his design worked, the reputation of Babbage will be redeemed. There will be a collection of original Babbage pieces on display along with details of his life.

The exhibition will be at the Science Museum, London. Info: 071-938 8080. More events are planned to coincide with Babbage's anniversary, details will be appearing in future editions of *Express*.

OIS IMC '91 **2-4 July**
At the Wembley Conference and Exhibition Centre, London. Info: 071-931 9985.

PC World Forum **9-14 July**
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

International Music Show **10-14 July**
MIDI equipment and software galore, at the Olympia, London. Info: 071-730 7852.

The International 16-bit Computer Show **12 July**
At the Novotel Hotel, Hammersmith, London. Info on: 0726 68020.

GeoCon '91 **11-13 August**
At Cambridge, MA, USA. Info: 010 32 03 234 3180.

Computer Animation Competition and Exhibition **21-28 August**
At the Amiga Centre Scotland. Entries should be submitted either on floppy disk or PAL video tape by 31 July. Info: 031 557 4242.

Leeds Computer Extravaganza **13-15 Sept**
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.

Business Communications Awards **10 October**
At the Savoy Hotel, London. Entries from interested companies must be in by 15 July. Info: 0800 800 847.

Image Processing '91 **29-31 Oct**
At the Birmingham NEC. Info: 081-868 9933.

Computer Graphics '91 **5-7 Nov**
At the Alexandra Place in London. Info: 081-868 9933.

Desktop Cad '91 **5-7 Nov**
As above.

All Micro Show and Radio Rally **9 Nov**
At Bingley Hall, Stafford. Info: 0473 272002.

Computers in the City **12-14 Nov**
At the Barbican Centre in London. Info: 081-868 4466. ■

Golden Moments

A look back into the history of computing with *Express*. If it happened we reported it first.

ONE YEAR AGO

● As if *Xenon II* was not difficult enough, Debra Preston had an additional distraction when going for her highest score ever: contractions. Despite the pleas of her husband John and an emergency ambulance crew, she refused to leave her ST until the game was over. Then, having achieved her high score, she was driven to hospital where she gave birth to a baby girl named Tara.

● A computer foul-up resulted in the names of 3,000 payers being lost from St Albans council's Poll Tax register.

The council, along with many others across the country, had sensibly decided to install a computer system to speed up the processing of the Poll Tax. Unfortunately, the program was just not up to it. The loss of the names cost the rest of the payers £9 each.

With the scheduled changes for the Poll Tax, councils will have to spend money on yet more efficient computer systems to mess things up.

TWO YEARS AGO

● Micronet, which had presented the Government with a petition against the decision to impose VAT on its services, finally received its answer: No. Members felt that the electronic service should be considered as a paper-based publication. The Government thought otherwise. A spokesman said that the tax was the same as that on other non printed media.

● Cynthia Payne, infamous 'madam' and TV personality, set up a problem page on Micronet, offering her very personal brand of advice to the bemused.

● Cambridge International Software bundled the Archimedes 3000 with a mouse, joystick and 12 games for £809.85 in an attempt to confirm it as being 'obviously the ultimate games machine'. CIS had hoped to make a 'lot of money' out of the bundle.

The Insider...

A brief but regular look at the news and views of an industry which is desperate to be loved and then respected in the morning

My my my what a long hard week it's been. Are the PR men of the world all going crazy or what?

So, can you imagine which Press Rep for a leading computer manufacturer engaged in the following conversation with an *Express* hackette this week:

EH: So your company's going great guns at the moment?
PR man: Yes, we reckon we've got 80 per cent of the leisure market now
EH: So you must have 80 per cent of the condom market then?
PR Man: I'm sorry?
EH: Well condoms are used for pleasure , have you bought shares in British Rubber?
PR Man: Err no, but we've got 80 per cent of the pr**ks
And no I couldn't believe it either.

And so what's our Gazza been up to recently I here you ask - what plucky little computer angles does he have going for him this week? Ah well, our bed-ridden cheeky chummie was apparently so impressed with the Lynx Atari gave him to while away the hours on Emergency Ward Ten that the fun-loving Geordie playster phoned them up and said "Wor I like them Lynx's me, how's about 20 or so for the rest of the lads?" Whereupon good ole' Atari promptly despatched a whole bunch off to Whitehart Lane. So, if you can speak Geordie and want every Lynx game ever released why not give Atari a call.

Was he jumped or was he pushed? And does anyone care? Yep, Jamie Minotto, Commodore's new PC marketing man has left the company due to 'personal differences'. Only five months into the uphill struggle he packed his bags and was off. Anyone know the inside dirt on this one?

And here's a couple of real brain twisters that are best left unanswered for legal reasons.
1) Which boss of which leading hardware manufacturer is making a mint out of sending machines for repair to a company he has a substantial interest in? and, wait for it...
2) Which boss of a leading software house makes a packet out of importing cracked copies of the company's US software titles and selling them here in official boxes replete with official disk labels?
As I said, better not answer either of these posers as the boys concerned are likely to sue you out of this life. But you can always give *Express* a call anyhow.

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SOUNDING LIKE A PRO

AVR is pushing ST sampler technology to new and dizzying professional heights. Andy Hutchinson sounds out the company's latest meisterwerk, the Pro-series 16-bit sampler, designed to give you ST the cleanest bells and whistles around.

PRODUCT: AVR Pro-series 16-bit sampler
FROM: AVR
CONTACT: 0582 457348

Sampling on the ST has come a long, long way since the early days. Originally, the only sounds you'd get out of an ST sampler were hissy, headache inducing monotones. However, things have come a long way in a short time and the company which has done more to promote sampling on the ST than any other is Audio Visual Research.

About a year ago it released the first in its Pro-series of samplers, the 12-bit. It received rave reviews, and rightly so. The software was top notch and the hardware superbly engineered. The boys in the back room haven't been idle since Pro 12, they've been working on a sequel: the Pro-series 16-bit sampler.

Everything about the package oozes professional standards and this is echoed in the quality of sampling you will yield

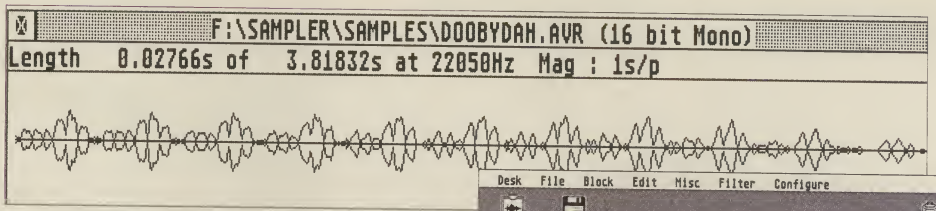
The sampler comes in a natty black briefcase and comprises: the sampler itself, a power supply, a huge manual, five system disks and two hi-fi connector leads. The sampler plugs straight into the cartridge socket on the ST and then a lead travels from a socket on the side of the sampler to the printer port.

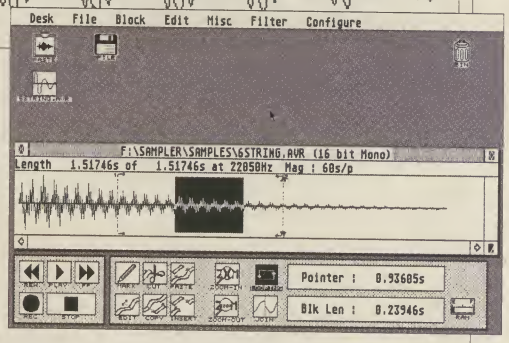
There are three main programs: the main editor, a Midiplay program and a drumbeat sequencer. The latter two are of use when you need to play back samples. The sampler uses its own power supply to retain a clear sound and to avoid sound spikes in the sample process. Once set up, the main editor program can be executed.

The front end of the editor program looks very Mac-like. This graphic look is echoed in the Mac-like keyboard shortcuts and custom icons which adorn the display. All the main functions can have keyboard shortcuts meaning that editing is less of a headache.

Samples are loaded into memory by double clicking on the sample icon. A window then opens showing a graphic wave form display and an icon appears on the desktop. The number of samples which can be held in memory at once depends on the size of the samples and the amount of memory your ST has got. To get the most out of the system, you'll need at least 2Mb.

The main configuration screen enables the user to specify output to monitor or hi-fi, the sampling frequency and the type of sample display. When you're happy with the set up you can get down to sampling. The cartridge can sample at four main frequencies: 16, 22.05, 32 and 44.1 KHz – CD frequency. Clicking on the record icon brings up a menu screen. This enables the user to specify sample trigger times and to select the volume level by monitoring a realtime waveform display.

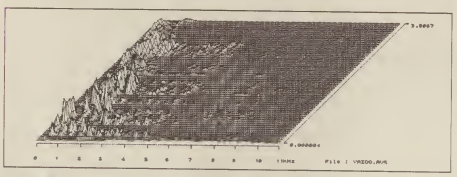



Desk File Block Edit Misc Filter Configure
F:\SAMPLER\SAMPLES\6STRING.AVR (16 bit Mono)
Length 1.51746s of 1.51746s at 22050Hz Mag : 60s/p
Pointer : 0.93605s
Blk Len : 0.23946s

• This sample (above) is a female vocal, viewed at the highest resolution. Imperfections can easily be spotted via this display.
• The main editing screen (right) is very Mac-like in design, consisting of loads of custom designed icons.

When everything's ready, click on the sample box and hit the sound source. The sampler then records until it either runs out of memory or you tell it to stop. The editing process is made easy with markers. One marker shows graphically where you're editing. Other points can be marked for aspects such as looping.

To get really tight editing, the user can zoom right down into the sample to where one screen pixel depicts one hertz. This means that you can be utterly precise about the portions of the sample which you're editing.



• A full frequency wave graphic can be compiled on any sample held in memory. This aids the editing process tremendously.

Every main function is configurable. For example, if you're unhappy with the position of a marker, you can modify its position from an edit screen. This shows your marker in place on the waveform and enables you to manually move it, or let the computer work out the next viable position and snap to an appropriate point. Having marked a couple of positions on a sample these can be cut and pasted. The cut sample gets stored in its own window and can be saved or treated to an effect. Once you're happy with the length of the sample, the sound can be treated to a series of effects and filters. The filters are accessed from two menus: a fast filters menu and a slow filters menu. Fast filters comprises: lo pass, band pass, notch, hi pass, boost, no dc, bass and treble, the slow filters menu comprises just the first four. These enable a sound to be tidied up, to reduce hiss for instance or to add a bit more bass to a weedy sample.

Special effects – hall, room, reverb, echo, multi and flange – completely alter the sound. These are configurable, so, for instance, you can alter the amount of echo you want, or change the flange wave rate.

If you want to convert the sample to a higher or lower rate, thus speeding it up or slowing it down, you can simply enter the frequency you'd like it played back at. So you can transform a booming voice into a woody-wood pecker sound. If you run the editor on an STE, then volume, treble, bass and mix output can be modified. Thus STE owners get to listen to and change the sample globally, without changing it forever.

This is a sampler which would be equally at home in the studio as in the computer room. Everything about the package oozes professional standards and this is echoed in the quality of the sampling you'll yield. At £350 it isn't cheap, but then, this is the very best. ■

SOUNDING OUT SAMPLER QUALITIES – HOW IT SCORED

FOR

- ▲ An intuitive front-end display means that sample editing is quick, easy and efficient.
- ▲ The quality of the samples produced with this hardware is top notch, up to and beyond CD quality.
- ▲ The filters in the edit program mean that the user can transform a sad sample into a masterpiece.
- ▲ The massive array of configurations means you're unlikely to find yourself saying "but if only I could"

AGAINST

- ▼ Very pricey piece of kit, you could buy yourself another 1Mb machine for the same price.
- ▼ The slow filters can be very slow, as long as a couple of hours in some cases.
- ▼ Very memory reliant. At 44.1KHz you'll only get about three seconds of sample from a one Mb machine

COST: £350

HOSTILE ALL-TERRA

The year is 2320 and the entire Galaxy is in a turmoil. In recent years the threat of an alien attack has increased, with the discovery of new and dangerous lifeforms. Throughout space the civilised sectors are at the mercy of marauding intruders. How are these tranquil homelands going to combat a massive invasion when there are no experienced space-fighters? The time for crash-training is NOW!

COVER DISK

Time to suit up, space-punks! Grab that disk from the cover of this week's *Express* and prepare to get airborne! Neil Jackson is your briefing sergeant, so listen up!

YOUR GALAXY NEEDS YOU

You are urgently needed to repel the hostile alien invaders, but you're no good to anyone if you're green. You gotta toughen up, get wise and rule the skies, and the only place you'll find out how is at Stripworld – the training ground for all Galactic Fighter Pilots.

Stripworld is divided into 10 different levels, each one a bit tougher than the last. At first you are given a Star Fighter to control and you must fly from one side of the world to the other. You're dropped on to the planet's surface by the mother ship which then departs. Don't panic! It will pick you up later – IF you make it to the end of the level.

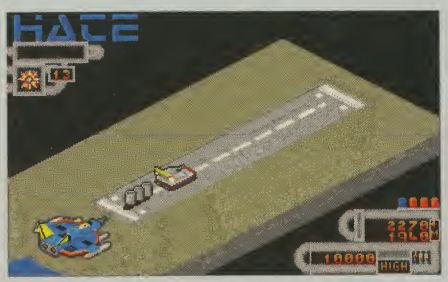
The drop-off and the pick-up are both handled automatically. The word AUTO flashes on and off at the top left-hand corner of the screen when your craft is running under autopilot.

▲ *With more mines than the Persian Gulf, HATE is a really dodgy affair. Pop 'em off at long range to get through.*

UP, UP AND AWAY!

On your flight across Stripworld you find a host of mock alien attackers. Don't be fooled, though. They'll kill you as soon as look at you – we need superheroes for REAL defence-work, so wasters can expected to get wasted! Don't touch any alien craft, don't fly over anything on the ground which moves and don't hit the deck!

At your disposal you have double-beam pulse lasers which can fire a charge about 10 ship-lengths ahead of you. These lasers require a short length of time to recharge and this decreases the number of shots you can fire when they're flat. The indicator at the top left-hand corner of the screen is a laser-strength meter. Keep an eye on this and make every one of your shots count.



▲ *Get to the level's end and the mother ship arrives to pick you up. But she'll immediately drop you right in itagain!*

SOFT CELLS AND HARD ATTACKS

As you skate across the surface you may spot strange, glowing orbs here and there. These are nuclear power stations which you can use to provide vital Plasma Cells for fuelling your Star Fighter. Just line yourself up in front of a nuke and give a good, hard blast of laser-beam. The dome explodes and once the cloud clears you find a grey cylinder...a Plasma Cell. Fly low over it to scoop it up. It attaches itself to the back of your craft and follows you.

Plasma Cells are your lifeblood on Stripworld and on the later worlds where you fight for real. Each cell acts as an extra life – if you're hit a cell disappears, but you carry on unscathed. When your last cell is gone, you're close to death. If you get hit again, that's it: you lose a ship and you re-start the level.

◀ *Trash the nukes to find the Plasma Cells. Watch out for sly saucers hovering behind.*

GET GOING!

Having trouble getting started? To play *HATE*, you need either a Commodore Amiga or Atari ST. The disk has been specially created so that both types of computer can find and load the game.

ATARI ST

First plug your joystick into port 1 (the normal joystick port). Pop the disk into the drive and turn on your ST.

COMMODORE AMIGA

Plug your joystick into port 1 (the normal joystick port) . Insert the disk into the drive and turn on your Amiga.

HATE loads automatically. There's a short intro sequence and then the main title screen and high-score table are displayed. To begin playing just press the fire button on the joystick.

NO STICK? YOU'RE NOT STUCK

Wot? No joystick? Never mind, you can still play *HATE*, using your computer's keyboard. It's easy! You can use the standard cursor keys if you wish, but you may find these a bit more comfortable.

STAR FIGHTER KEY CONTROLS	
Q	= Climb
A	= Dive
K	= Bank Left
L	= Bank Right
SPACE BAR	= Fire Lasers

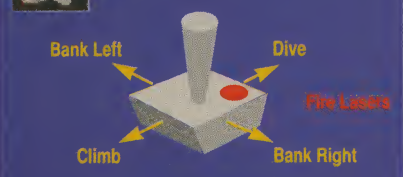
GAV KEY CONTROLS	
Q	= Advance
A	= Retreat
K	= Steer Left
L	= Steer Right
SPACE BAR	= Fire Lasers

Q and SPACE BAR = Launch Bomb

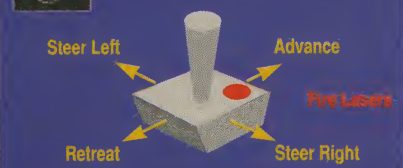
ARRRRGH! STOP! THE PHONE'S RINGING
P = Pause, at any time

GIVE IT SOME STICK

STAR FIGHTER



GROUND ASSAULT VEHICLE



To launch a bomb press FIRE while pushing the stick forward.

RAIN ENCOUNTER!

LIVING ON THE EDGE

You start the first level with four lives and one is deducted every time you're wiped out and re-started. You continue onwards, level after level, until all your lives are extinguished. You can increase the number of reserve lives by collecting the Plasma Cells. Not only do they act as a direct safety shield, they are also traded in when you successfully negotiate an entire level. For every cell that you manage to tow back to the mother ship, you receive one extra life, up to a maximum of four. If you lose all your lives and you've got past level two, CENTRAL GALAXY COMMAND restarts you one level back from where you originally died.

▲ *Drag the cells to the end for extra lives, but don't get hit on the way there. You might live, but they certainly won't!*

MISSION COMPLETE... GO TO GROUND

Once you finish the first level, you move on to level two (also on Stripworld). But this time instead of a Star Fighter, you're controlling a Ground Assault Vehicle (GAV). These tough, fast-moving craft can hover across water and land with ease. They're armed to the teeth too and they come supplied with a standard double-beam pulse laser PLUS a mortar bomb launcher. Push up and press fire at the same time to fire a red-hot lump of explosives into the air. Mortars fall back to the ground about four GAV-lengths ahead of you, destroying everything they touch (except you, that is!).

Use the GAV to traverse the level and remember to collect as many Plasma Cells as you can. They link up to the back of the GAV, just as they do on the Star Fighter. They also count for extra lives if you manage to get them to the end of the level where the Mother ship reappears.

▲ *If you sphinx that HATE looks easy, just try getting to level 30 without using the cheat mode. It's tough!*

PLASMA PROBLEMS?

Every now and then you'll find a Plasma Cell that's a bit different from the usual ones. Instead of a blue base, the occasionally weird one has a red and yellow base. These are the special weapon cells and they're quite a bit different to their plasma partners. Scoop them up as normal, but check out the weapons box at the top left corner of the screen. There are four different types of special weapons: homing missiles, high-energy beam lasers, spinning balls of pure plasma and smart bombs. Each has a slightly different attack mode and is triggered by pushing up and pressing fire at the same time. Use your specials sparingly, because they don't last long! When they run out you return to your normal firepower.

▲ *"Tango 2. This is Hotdog. Is that the NCE HQ down there? Permission to bomb it, sir".*

ENTER STRIPWORLD...

HATE has 30 levels in all, only 10 of which are on Stripworld. During your time on Stripworld you're merely a trainee, though you can still be killed. Once you've passed the tenth level, that's it! You've qualified. As a fully-fledged pilot you can expect more danger and less reaction time as you fly and drive through another 10 levels of *HATE*. From here on in the aliens are real, so get in there and *get strafing!* But you're still not in the clear: continue onwards, now promoted to Commander for the final, frantic 10 levels. Enjoy this trip! ■

▲ *Ground Assault is easy in the GAV - the tank-cum-surf-board of the future. And it even runs on unleaded!*

DODGY DISK?

One or two of any duplication as big as this one are bound to be, er, "special." If yours won't work, return it with an SAE to: Express Disk, Discopy Labs, Unit A, West March, London Rd, Daventry, Northants NN11 4SA.

DISPLAY OF HATE

TAKEN A BEATING? TRY CHEATING!

If you keep getting killed and you want a bit of an edge, why not use the in-built cheat mode? To access it just press P to pause, whenever your craft is not in AUTOPILOT mode (the word AUTO disappears). When the screen freezes type JUDITH on the keyboard. The border should flash to let you know the password is correct.

To re-start press the fire button and use one of the special keys to access the cheat features.

COLLISIONS OFF/ON
Press F9 and a green or red bar appears momentarily. GREEN = Collisions OFF. RED = Collisions ON

JUMP TO NEXT LEVEL
Press F10 and *HATE* immediately loads up the next level. You can use it to get all the way through the game (30 levels).

● By the way, don't miss out on an *Express* special coming up very soon packed with more playing tips for *HATE*. And in fact we could do with your help. If you fancy winning some free software, send in your playing hints and guides for *HATE* to: *HATE* Special, *Express*, 30 Monmouth St, Bath BA1 2BW.

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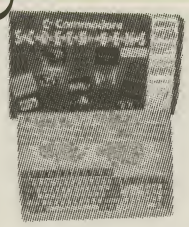

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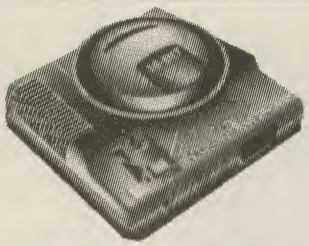

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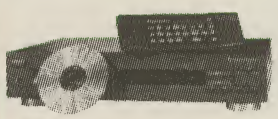

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MAKING WAVES

PRODUCT: Korg Wavestation
MACHINE: MIDI compatible synthesizer
FROM: Korg UK
CONTACT: 081-427 3397
COMPATIBILITY: ST, Amiga, PC

So you've bought a MIDI interface and some software, but you've nothing to drive it with. Keith Pomfret checks out Korg's Wavestation, the sexiest sound machine around.

Wavestation. Even the name sounds sexy. *Express* sniffed around the big music shows in the hope of picking up the perfect piece of MIDI kit to compliment an ST Amiga or PC. After six months solid research, we came up with the Korg Wavestation. The Wavestation is a five-octave polyphonic synthesizer with full MIDI implimentation and more features than Warner Brothers. To simply call it a synth is like calling a laser beam a torch.

GOOD CONNECTIONS

We connected the Wavestation to a PC running Voyetra Gold through a Voyetra interface, an Amiga running Tiger Cub through an HB Marketing interface and an ST running Steinberg Pro 24. These machines and interface/software combinations were chosen as a reasonable indicator of the sort of system that a serious hobbyist or up and coming semi-pro musician might use. The Wavestation worked well with the three installations in both studio and out on stage.

HYBRID MONSTER OR THOROUGHBRED?

When a company takes a product and shovels features in until it overflows, it runs the risk of an awkward hybrid in which essential components feel as if they've been added as an afterthought and various operating systems clash at the user interface.

Thankfully this isn't the case here. The Wavestation uses 24-bit central processing and rather odd 19-bit digital to analogue converters. This is totally transparent to the user. All the player sees is an uncluttered control panel with a numeric cluster, rotary and switched incrementors, a display window, cursor cluster, volume control joystick and performance wheel.

The LCD display was a bit of a disappointment. Its easy to read text and simple to follow block diagrams became unreadable in direct stage lighting because of reflections. This was a major niggle between songs and should have been solved at the design stage with non-reflective glass or plastic.

SENSE OF TOUCH

On Korg's demonstration stand at the Northern Music Show, the Wavestation begged to be played. With no manuals to hand and all of Korg's staff busily engaged with customers, there was a chance to test the machine's user-friendliness. We were able to wander through the hundreds of preset sounds, waves and performances and within a matter of minutes, the intuitive editing system opened itself up to allow total control.

The first and most important thing from any machine or instrument that has a keyboard is the feel of that keyboard. The Wavestation doesn't have the weighted key feel of a grand piano, but its five octaves are touch sensitive and have aftertouch. This means that the harder you thump the keys, the louder the racket and if you hold the keys down, you can trigger any of the 45 extra effects such as vibrato or tremolo.

The combination of totally dynamic keyboard with pitch and effects wheels and a joystick that allows you to dynamically mix up to four sound sources as you play gives you a control over the instrument seldom felt with electronic keyboards.

To simply call the wavestation a synthesizer is like calling a laser beam a torch

The heart of the Wavestation is its bank of 365 waves. These are the building blocks that allow you to construct the timbre of a sound. The first 111 are immediately recognisable as instrumental sounds including organs, pipes, strings, voices, basses, brasses and guitars. The other sounds are pre-formed waveforms similar to those on analogue and digital synths. Combining these produces the rich sound of the legendary synths such as the Mini Moog D, Prophet and Odyssey. Half the fun with a Wavestation is building sounds from the vast library of raw material.

One black mark here. The Wavestation is a true synthesizer rather than a collection of digital samples and as such has problems with real-world sounds like a grand piano. Korg said it was possible to program an acceptable piano, but the card with the piano patch on failed to arrive and we were unable to emulate a Steinway nine foot concert grand with it.

Digging deeper into the Wavestation's menus brought us to a feature called Wave Sequencing. In a normal synth, you can combine different waves in parallel to build up sounds. You might start with a triangular wave and a pair of ramp waves and combine them to give a rich brassy texture. This could be modified AND amplified into a vibrant trumpet or horn.

Wavesequencing allows you to combine waves one after another instead of side by side. If you tail a wave with a short hard attack, follow it with a tuneful softer wave and repeat the process, you can end up with an interesting rhythmic sound, sequence of notes or sequence of textures.

By choosing from the vast amount of source material you can build rhythm waves, instant arpeggios and, more subtly, you can choose similar waves and join them together in order to make a sound with constantly shifting dynamics. Once a Wave Sequence has been chosen it can be treated as any sound patch and several Wave sequences can be run together.

GO FASTER STRIPES

One of the great strengths of the Wavestation for a computer user is what it doesn't have. Anyone using a computer on a MIDI network will have sequencing software and the ability to drive more than one MIDI unit. The Wavestation doesn't need an in-built sequencer to do a job that can be handled better by a computer.

There aren't banks upon banks of tinny percussion instruments either. The Wavestation is a mixing pot for melodic sound. As more Wavestations are bought, patch and sequence editing software should become available to complete the picture.

FINAL WAVE

The Wavestation is a quality synthesizer for the serious enthusiast and musician who wants a machine that will pay for itself. Even without a decent piano sound it was impressive. The Wavestation combines high quality high specification and user-friendliness to provide good value and a machine that won't know obsolescence for some time to come. it isn't weighed down with sequencers and drumulators and is an ideal mother keyboard for home studio and stage. ■

MODIFY YOUR PERFORMANCE TO THE BEST EFFECT

The Wavestation allows you to add effects to the synthesized sounds adding depth and presence to the sound as well as performance modifications. They are:
Nine types of reverb; three types of EQ delay – forward and reverse gated reverb; stereo, harmonic, crossover and quadrature chorus ; three flangers; stereo enhancer; hard rock distortion ; hard rock overdrive; phase shifters; stereo rotary (Leslie) effect and several combined effects.

To further enhance the output, the Wavestation allows you to assign dual parallel effects which send one effect to the left channel and the other to the right. An example of this is delay/flanger – a delay is assigned to the left and a filter sweep and harmonic matrix shift is assigned to the right.

MAKING THE RIGHT SOUNDS?

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AGAINST
- ▼ Worth the £1,575, but it's still a lot of cash
- ▼ Display is difficult to read in high ambient light
- ▼ Possible to kill a full bank of sounds by accident

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Games Week

Hubble, bubble, toil and trouble ... that's Gary Penn, with another cute collection of hot news, rave reviews and

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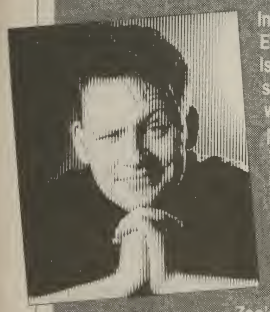


In last week's Express, Issue 137, a statement was published that may have been interpreted as suggesting that Electronic Zoo's product *The Ball Game* was based on a concept copied from Leisure Genius' *Spot*. This is clearly not the case. We apologise if this impression was mistakenly given.

● It's about this time of the week I like to ask myself 'Whatever happened to *Tip Off*, the basketball simulation being put together by *Kick Off* authors Steve Screech and Dino Dini for Anco?' The answer, it transpires, is that *Tip Off* is in fact complete on the Amiga, but Anco's unsure whether the product should be released. This isn't anything to do with a poor-quality ware - it's just that Anco's not entirely convinced that the software scene is particularly active on the buying front at present.

Stay tuned to this station for further developments ...

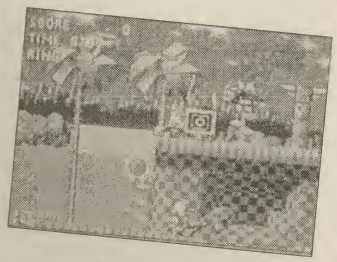
● There's very little in this world which cannot be licensed provided the price is right. So what do you do when all the expensive big-name films and characters have been snapped up? Acquire licences to television programmes, that's what.

In the wake of *Edd The Duck* and *Postman Pat*, Alternative is bringing – would you believe – *'Allo 'Allo* to the home computer screens. I haven't a clue how the company's going to go about bringing that oh-so-funny, wacky and zany humour for which this show is known and loved by millions, to the 8-bit and 16-bit formats, but we can expect to be laughing our socks off before the year is out.

● Is there no escape from these creatures? Psygnosis' *Lemmings* are now set to make their mark not only in the arcades via a Data East coin-operated machine, but also on the Archimedes and on virtually every conceivable cartridge-based system available – and that includes the Amstrad and Commodore 64.

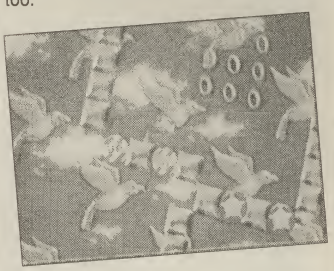
Details about the trackball-driven arcade version are very sketchy, but there's no reason why it will differ greatly from the home-based incarnations. It should be appearing in arcades countrywide before 1992. Incidentally, apparently *Lemmings* have captured people's imaginations to the extent that they are throwing *Lemmings* parties.

He's here - the Hedgehog whose face has graced more magazine covers than Jim Morrison's has arrived. And it's really quite something. It looks gorgeous – beautiful even. It sounds divine. In fact, I'd go so far as to say it's the slickest platform-based romp in the world – but only, sadly, in terms of aesthetics. When it comes to playability, ***Sonic*** delivers far less than it promises (which is considerably more than most other releases). That's not to say it should be dismissed with a single brush of the hand – ***Sonic's*** certainly entertaining in a classic platform romp kinda way – it's just that ***Sonic's*** not the ***Mario***-beater that everyone was expecting.



• Sonic punches a video monitor in Green Hill Zone. He'd be better off jumping on it to get the 10 rings.

Whereas the ***Mario*** series offers an adventure in itself, ***Sonic*** is akin to a computerised adventure playground of sorts. Generally there's a lot of running around and jumping and bouncing and a little bit of discovering secret bonuses too.



• Rolling around inside a Secret Zone. The UP and DOWN increase and decrease the speed of rotation.

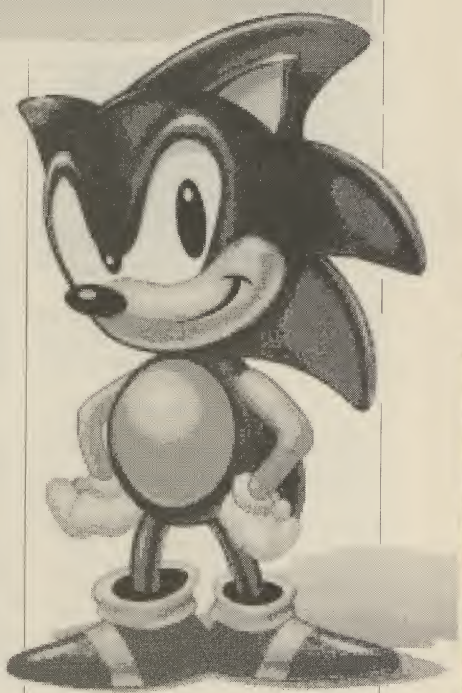
A mad scientist called Dr Ivo Robotnik is kidnapping innocent animals and turning them into robots. Hardly a cause for concern – unless you happen to be a hedgehog called ***Sonic***, who's out to put the world to rights and rescue kidnapped innocent animals in the process. This hip, spiky-haired, trainer-wearing hedgehog isn't just good at running, oh no. The ace up his sleeve is a move called the Super Sonic Spin (which doesn't involve rubbing his chin in disbelieve whenever he's threatened by something bad). No, ***Sonic*** curls up into a protective ball in which state he can happily knock out anything that gets in his way. Well, provided it isn't spikier than he is.

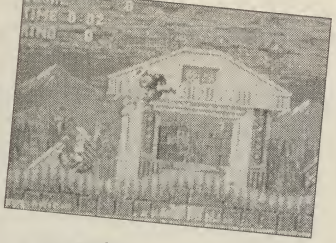
The Super Sonic Spin is also used to break open video monitors dotted about the landscape (some are hidden in the strangest places, too). ***Sonic*** is then rewarded with the contents of the monitor in question, be it a protective shield, invincibility or increased running speed (and that just has to be seen to be believed) – all of which are granted on a temporary basis. Marginally more permanent is the extra life and the addition to ***Sonic's*** inventory of 10 rings.

Ah, yes – the rings. There are hundreds of them to be found in every zone and most are easily collected. However these sparklers have more use than is at first apparent. They provide a sort of dog's chance for ***Sonic*** - that's to say, ***Sonic*** doesn't die if he's in possession of one or more ring when he bumps into something bad. Collecting a sufficient quantity of rings affords ***Sonic*** the opportunity of entering the Secret Zone. A maze of blocks rotates through 360 degrees against a lush two-layer parallax backdrop built of vaguely Escher-esque animals.

At the heart of the maze lies the Chaos Emerald - the object of ***Sonic***'s desire. Special blocks make life that little bit more difficult. Some bump ***Sonic*** away, others affect the rotation of the maze in terms of direction and speed. There are six Secret Zones in total, and a hefty reward for collecting all six gems.

Sonic's weird and wonderful world comprises six Zones, each divided into the Acts (levels). At the end of every third Act ***Sonic*** has a short scrap with Dr Robotnik. He's sat inside his strange floating form of transport which sports a different weapon every time – such as a ball on a chain, a form of flamethrower and a retractable spike which also removes the scenery. Skilful Super Sonic Spinning is of the essence as Dr Robotnik chases Sonic around the screen.





• Here in Marble Zone we see Sonic attacked by one of the few adversaries which shoots.

Each Zone has an oddball theme and a look and a tune to match. The first Zone, Green Hill, features spikes, springboards (which increase considerably ***Sonic***'s jumping height), bridges (which bend under ***Sonic***'s weight), and loops (which Sonic runs around). Marble Zone on the other hand involves the negotiation of maze-like caverns filled with lava pools, huge spiked platforms attached to chains (which fall and rise), and moving blocks. Zone Three, Spring Yard, is packed with springs and pintable bumpers – indeed, part of one Act is a form of pintable where ***Sonic*** becomes the ball.

Labyrinth Zone has an obvious quality. However the best part of this labyrinth happens to be underwater. ➤

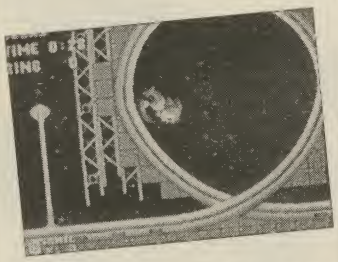
TOP 10 SIXTEEN-BIT GAMES

THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	12	*Eye of the beholder*	US Gold	AG PC
2	1	*Lombard RAC rally*	Hit Squad	ST AG PC
3	5	*PGA Tour Golf*	Electronic Arts	AG PC OT
4	2	*3D Pool*	Mirror Image	ST AG PC
5	3	*Xenon 2*	Mirror Image	ST AG PC
6	4	*Lemmings*	Psygnosis	ST AG PC
7	13	*Kicking Off – Winning tactics*	Anco	ST AG
8	8	*Fantasy World Dizzy*	Code Masters	ST AG
9	17	*Steve Davis world snooker*	CDS	ST AG
10	6	*Armour-Geddon*	Psygnosis	ST AG

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

which is why he has to regularly consume bubbles of oxygen produced along the way.

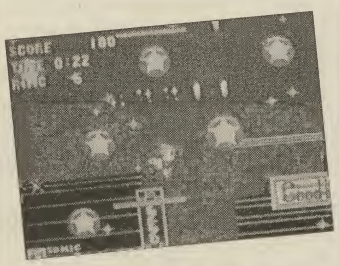
Star Light Zone is pretty much like a fairground ride in itself, while Scrap Brain Zone is full of slippery floors, razor-sharp saws and grinding wheels. Should ***Sonic*** prove himself man enough to make it through these six Zones in one piece he gets to meet Dr Robotnik in his hideout for a show-down from which there can be only one winner.



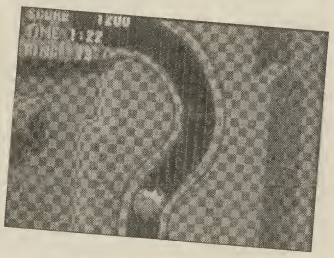
• Sonic loops the loop in Star Light Zone. He can only do this if he first builds up enough speed.

Sonic's strength is that it overflows with neat touches. The hedgehog's legs are speed-blurred when he runs at high speed, and his range of expressions is vast. Context-sensitivity abounds in almost all departments. It goes beyond a simple fanfare for an extra life or aural accompaniment for a jumping action or screeching to a halt – every event has an associated jingle or spot effect. The Game Over tune is a suitably depressing, down-beat remix of the main theme which tails off in a sarcastic manner, while the simple jingle played when ***Sonic*** is running out of air in the underwater cavern does a tremendous job of getting the adrenalin flowing.

It's obvious even from the outset that ***Sonic***'s a tad different to other Sega cartridges. As soon as the MegaDrive's turned on, the word SEGA appears larger than usual and on a white background, then a chorus of angels with a sore throat sing 'SAY-GA'. Even the arcade-style attract sequence is real neat. A large ***Sonic*** upper half inside an MGM-style surround slides on screen and he waggles his finger in a disapproving manner. How sweet.



• The Spring Yard Zone features pin tables of sorts, with Sonic the ball bouncing off these pins.



• Green Hill Zone's three Acts feature tunnels such as this. Sonic instinctively curls up and rolls through them.

As much as I enjoyed playing ***Sonic***, I didn't find it as compulsive as, say, the ***Mario*** series. In essence ***Sonic***'s platform action offers nothing new. What it does provide is a package full of surprises and features which impress – for the first few viewings, anyway. The adversaries are a great disappointment as they lack true character and interaction with them is minimal. There are a couple of bugs too: ***Sonic*** is occasionally forced into walls that don't lead to secret rooms, and the appearance of flickering pieces of scenery is all the more noticeable within the otherwise ultra-slick surroundings.

Gripes aside, ***Sonic*** is visual and aural feast which just has to be consumed. It's without question one cartridge that every Sega MegaDriver just has to own. It's also going to be a bitch to convert to the home computer formats ... ■

SUPERCARS II

Gremlin • Amiga

Following the rather useful playing tips a few weeks back, here's a cheat mode which should make life a little easier ... Enter Player One's name as 'Wonderland' and Player Two's name as 'The Seer'. You won't actually know that the cheat's active until you begin play - with either one or two players. But when the action starts you should find that you have an unlimited supply of missiles.

PREDATOR 2: THE HUNT CONTINUES

Imageworks
Amiga • ST

AMIGA
Why sail through Predator 2 when you cruise ... Begin play then pause the action. Type 'YOURE ONE UGLY MOTHER' (including spaces) and resume play. You now have an unlimited supply of ammunition. Pressing F1 will advance a level.

ATARI ST
This has the same effect, only when the action's paused, type 'YOURE ONE UGLY MUTHA'.

PP HAMMER AND HIS PNEUMATIC WEAPON

Demonware • Amiga • £25.53

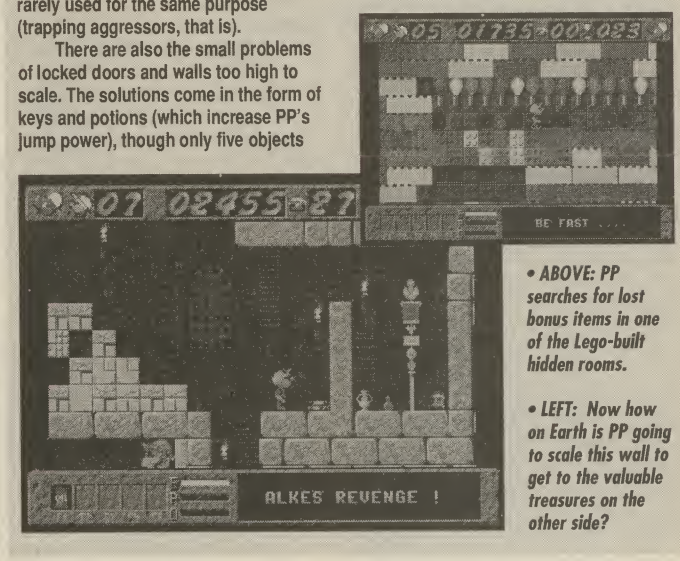
What a fib. *PP Hammer's pneumatic weapon* turns out to be not a weapon at all but a useful tool. Ahem. It's a drill, you see, for removing soft rocks from his world full of platforms and ladders and not the strange creatures. The reasoning for this is to reach otherwise inaccessible areas and to uncover any vital objects occasionally hidden within the stone.

But there's a catch. PP can't drill through the block on which he stands – only those immediately either side. It's much the same as the digging action in those classic platform romps Space Panic and Lode Runner, only it's very rarely used for the same purpose (trapping aggressors, that is).

There are also the small problems of locked doors and walls too high to scale. The solutions come in the form of keys and potions (which increase PP's jump power), though only five objects can be held at any time. The may treasures left lying around are simply converted into points.

PP's an endearing little fellow. He's very expressive but not too cute. For example, he glows a glorious shade of red when he gets burned, pulls his hat over his head when he ducks and crawls, and when he's left alone for too long PP takes a crafty drag on a cigarette (that's the rest of Europe for you).

PP Hammer's challenge often frustrates, mainly because there's a lack of variety and flexibility. However it does somehow manage to remain playable, and as such is worth a look.



• ABOVE: PP searches for lost bonus items in one of the Lego-built hidden rooms.

• LEFT: Now how on Earth is PP going to scale this wall to get to the valuable treasures on the other side?

GAMES REVIEW

BILL & TED'S EXCELLENT ADVENTURE

Accolade • Amiga, Atari ST, IBM PC & Compatibles • £25.53

• Bodacious Bill and triumphant Ted have a note to give the deaf musical dude Beethoven.

Excellent! *Bill & Ted's Excellent Adventure* comes to the home computer. Bogus. It's most untriumphant. Accolade has stuck to the film's storyline like well-chewed gum, however the end result is an arcade adventure which is playable but far too simple for its own good.

Those bodacious dudes that are Bill and Ted are in danger of flunking school most heinously, which would mean being kicked out for good. Enter Rufus, a guardian angel from the future - a future which sees the boys' band, the Wyld Stallynz, bigger than the biggest thing ever. Indeed, their music actually shapes civilization as we will come to know it.

Rufus furnishes the duo with a time-travelling telephone booth. The reason for this is simple: Bill and Ted can now journey through history and acquire famous dudes who will prove more than beneifical to their cause. Most of the characters are persuaded to go back to the future by giving them an object of some relevance. Others can only be picked up by first completing simple arcade-style action sequences.

And that's pretty much Bill & Ted's UnExcellent Adventure in a nutshell. It's a laugh (especially with smatterings of sampled sound taken from the film). It's playable (but not for long as it's far too easy to complete). And it's overpriced for the quantity of entertainment on offer. A good licence is a terrible thing to waste ....

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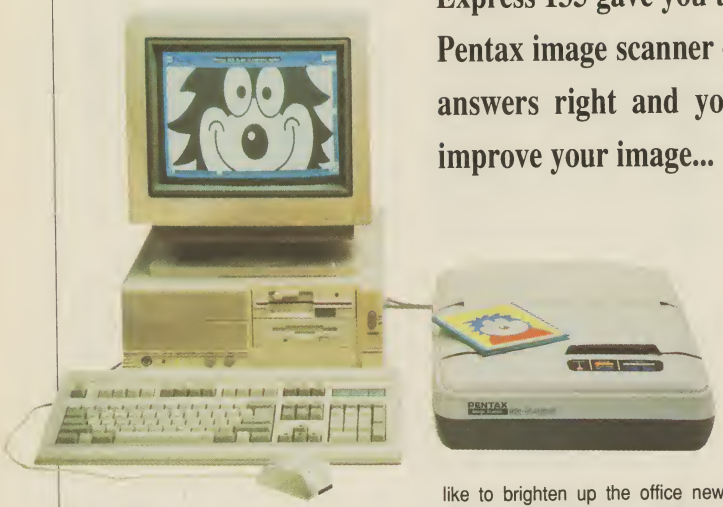

When we tried the Pentax Image Scanner SB-A4301 we were suitably impressed. Getting together with Pentax to offer one as a competition prize meant that we could offer the best *Express* DTP prize ever. This is the second half of the competition so get out your answers from *Express* 135, add them to this week's answers and send them in.

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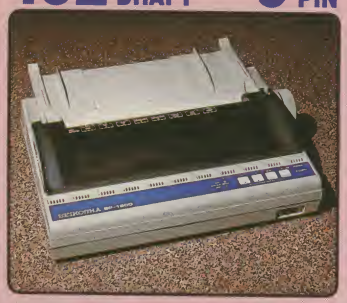

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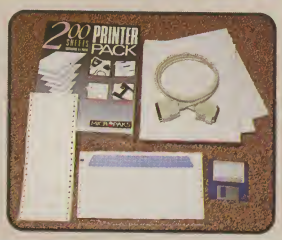

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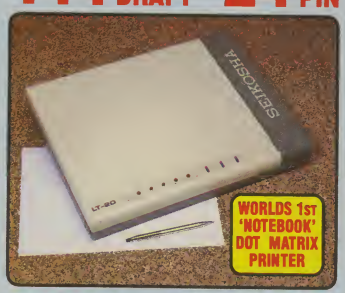

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